

THE AIR OF THE CITY: ATMOSPHERIC DIALOGUES IN THE MAKING OF LANDSCAPE IN
MEXICO CITY

by
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Dedication

For Nick

*A mí el aire sutil de mi gran ciudad—transparencia donde reside la mitad
de su hermosura; atmósfera que aclara, que purifica, que enjuta—me
descubrió de nuevo (como si esta vez lo hiciera sólo para mis sentidos) todo
un mundo de alegría serena cuyo valor esencial estaba en la realización
perenne del equilibrio: equilibrio del trazo y el punto, de la línea y el color,
de la superficie y la arista, del cuerpo y el contorno, de lo diáfano, y lo
opaco...*

[The subtle air of my great city—the transparency in which half
her beauty resides; an atmosphere that clarifies, that purifies,
that clears up—discovered me again (as if this time, she did it
only for my senses) a whole world of serene joy whose essential
value lies in the perennial achieving of balance: balance of
sketch and design, of line and color, of surface and edge, of
body and contour, of transparency and opaqueness...]

Martín Luis Guzmán, *El águila y la serpiente*, 1928

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Abstract

This dissertation reimagines Mexico City's urban history, foregrounding an immaterial natural element, air, in the conversation about the capital's overarching structural and environmental transformation. In this, Mexico City's atmosphere became a shared common ground that consolidated politics, public health, ideas of citizenship and responsibility, competing visions of the future, and the dilemmas embedded in the quest for modernity. Prevailing historiography on Latin American urbanization has surveyed the environmental consequences of prolonged urban growth, highlighting the centrality—across varying geographies—of unequal resource access manifested primarily in conflicts over land and water. Yet, discord proliferated in and over the sky as well. Extant scholarship has heretofore overlooked the air as a focus of historical inquiry, a topic that has garnered more attention in the natural and social sciences. But Mexico City's long urban and environmental history, as this project demonstrates, is bookended by air-centric discourse. Atmospheric dialogue was central to the formation of a sense of place, even as the physical form of that place evolved over time.

In its consultation of a range of primary source material, including print media, scientific studies, speeches, government correspondence, census statistics, the reports of various organizations, and interviews, this dissertation analyzes an array of atmospheric narratives in order to interrogate the ways in which risks surrounding the air, and, by extension, city management and public health, were manufactured and understood. Politicians, scientists, economists, travelers, tourism promoters, environmental activists, and ordinary residents participated in knowledge-creation, transmitting and responding to developing urban environmental dangers, such as changes in air quality, over the long term. These processes sparked technological innovation, the expansion of environmental legislation, and grassroots activism. On-the-ground consciousness of this risk, forged in the late twentieth century through political processes and the embodied experiences of environmental activism, generated new air-centric dialogues and imbued new meanings into the polluted landscape. Despite its impalpability, air was a powerful, transformative force in Mexico City. It was paramount to the construction of place meaning throughout different historical periods, shaping the lived experience of landscape change along the way.

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Introduction

Mexico City: The Most Polluted Place on Earth

Starting in the 1950s newspapers around the United States began to draw parallels between the air in Mexico City's atmosphere and that of some of the most notoriously contaminated spaces around the world. Los Angeles; Donora, Pennsylvania; New York City; London; and Paris, long bothered by often-lethal air pollution events, were points of reference for describing the condition of the air in Mexico's industrializing capital. In 1949, for example, the *Dallas Morning News*, quoting medical climatologist Clarence Alonzo Mills, warned that "the smoky clouds that blanket Mexico City nearly every morning are 'very much like' the poison smog that killed twenty persons and made 5,000 more acutely ill last year at Donora, Pa." The *Los Angeles Times* also published multiple accounts during this period, including one from aerial photographer William Garnett, who situated the haze hanging over Mexico City into the same category as the smog smothering Los Angeles: his "worst headache." In 1959, another article titled "Smog Around the World" contested the exceptionalism of Los Angeles's air pollution, by then considered the world's most severe, arguing that Paris and Mexico City were comparably "plagued by airborne contaminants which blot out scenery and sometimes even the sun." Mexico's Confederation of the National Chambers of Commerce yielded to a similar tactic, announcing in 1960 that the "smog in Mexico City is becoming almost as serious as in Los Angeles."¹ Absent sufficient data and a standardized, quantitative methodology to make sense of it all, such commentary established an early and informal metric by which to measure and easily translate Mexico City's emergent air pollution problem.

¹ Although the chemical composition of air pollution in Mexico City differed from that of cities in the United States and Europe, whose pollution was largely caused by the mass burning of coal during the early twentieth century, comparisons abounded of the *experience* of visual impairment due to pollution. "Mexico City Gets Warning About Smog," *Dallas Morning News*, February 26, 1949; Clarence Alonzo Mills, *This Air We Breathe* (Boston: Christopher Publishing House, 1962); "Lensman Takes to Air for His Pictures," *Los Angeles Times*, September 23, 1956; William A. Garnett, *Smog, Los Angeles*, 1949, photograph, 25.2 cm. x 34 cm., The J. Paul Getty Museum, Los Angeles; "Smog Around the World," *Los Angeles Times*, July 31, 1959, B4; "Mexico City Smog Becomes Problem," *Los Angeles Times*, January 6, 1960, 4.

The rise of this comparison, however, was likely ostensibly puzzling to many midcentury foreign readers and vacationers, who, whether informed by tourism advertising or via firsthand encounter, had for decades known or imagined Mexico City, a popular summer excursion destination, only as “delightfully ‘cool’ [with] magnificent scenery.”² Not uncommon were articles such as one published in 1938 by the *Los Angeles Times* praising Mexico for bestowing the world its “air-conditioned city,” the favored moniker used to evoke the pleasantness of the outdoors in the metropolis. The signature fresh breeze of “pure, dry, healthy air of a flower-scented quality” blowing through the valley complemented other, more obvious selling points such as the ancient pyramids of Teotihuacán, the ceremonial Zócalo plaza, or the mythologized twin volcanoes, Popocatepetl and Iztaccíhuatl. Yet the air circulating above the city, unlike the renowned physical landmarks firmly rooted in its terrestrial landscape, lacked a commensurate materiality. Editorials indeed attempted to reproduce the sensation, grandiosely portraying the natural ventilation effect generated by the winds interacting with the city’s surrounding mountain ranges and volcanic belt as a marvel orchestrated by “no less a person than Mother Nature herself.” However, they also suggested that it was too abstract for words, finding the question of Mexico City’s climatic conditions “difficult to answer [but] lovely” nonetheless.³ The Mexico City sky and the quality of

² Description of Mexico from “Mexico: All-Expense Tours,” *Chicago Daily Tribune*, June 21, 1936, E7. For more information on the twentieth-century rise of Mexico’s tourism industry, see Dina Berger, *The Development of Mexico’s Tourism Industry: Pyramids by Day, Martinis by Night* (New York: Palgrave Macmillan, 2006). Berger explores the earlier history of the Mexican tourism industry, the foundations for which were laid in 1928 with the establishment of the Comisión Mixta Pro-Turismo, or the Mixed Pro-Tourism Commission, a conglomeration of government officials and members of the business sector who worked together to promote the country to tourists from the United States. The 1936 opening of a stretch of the Pan-American Highway connecting the US southern border to central Mexico also played a significant role in jumpstarting motorized tourism to Mexico City. For an elaboration of the processes that led to the 1930s inauguration of what would become an important artery of the Pan-American transportation network and its effect on tourism in Mexico, reference Víctor Manuel Gruel Sánchez, “La inauguración de la Carretera Panamericana. Turismo y estereotipos entre México y Estados Unidos,” *Estudios Fronterizos* 18, no. 36 (May–August 2017): 126–150; see also Catherine R. Ettinger, “Mexico by Car: The Pan American Highway and Architecture for Tourism,” *Journal of Scientific Management and Tourism* 4, no. 2 (2018): 249–264; and, for an examination of the complementary process of highway and road construction in Mexico over roughly the first half of the twentieth century, see Michael K. Bess, *Routes of Compromise: Building Roads and Shaping the Nation of Mexico, 1917–1952* (Lincoln: University of Nebraska Press, 2017); and Benjamin Fulwider, “Driving the Nation: Road Transportation and the Postrevolutionary Mexican State, 1925–1960,” (PhD diss., Georgetown University, 2009) for a broad overview of the history of travel and transport, see J. Brian Freeman and Guillermo Guajardo Soto, “Travel and Transport in Mexico,” *Oxford Research Encyclopedia of Latin American History*, ed. William Beezley (Oxford and New York: Oxford University Press, 2018).

³ Hubert W. Kelley, “Mexico Still Ideal Tourist Land: Rural Areas Primitive and Ancient Ruins Not Yet ‘Old,’” *Los Angeles Times*, January 22, 1930; “Mexico to be Tour Mecca, Says Furlong,” *Boston Daily Globe*, February 2, 1930, B15; “Mexico, Land of Sun and Color,” *Boston Daily Globe*, February 18, 1934, 26; “Mexico Gives World Air-Conditioned

its air were thus noteworthy components in the reproduction of favorable renditions of the metropolis. Such narratives conveyed the message that the complete sensory experience of the city necessitated unmediated contact all the while making for a clever marketing strategy for encouraging travel to Mexico's capital.

While this style of promotional literature regularly stoked interest in the land that “enjoys...the weather of a perpetual spring” during the 1930s and 1940s, within the next decade it was overshadowed by reports fixated on the seemingly abrupt decay of scenic vistas around the capital, something that the Universidad Nacional Autónoma de México (National Autonomous University of Mexico, UNAM) confirmed in 1959, when it disclosed that the visibility range had dropped to one-fifth of the expected level, from five miles to one.⁴ To be sure, residents of the Valley of Mexico were no strangers to weather disruptions that triggered drastic reductions in visibility. During the 1920s and 1930s, for instance, *tolvaneras*, or dust storms, became a common but dreadful phenomenon: winds saturated with dust from the desiccated Lake Texcoco located to the northeast of the city frequently enshrouded the capital in a silty opacity.⁵ Though dramatic, unpleasant, and a considerable source of environmental pollution themselves, *tolvaneras* were more often seen as distinctly meteorological events despite their connection to centuries of human mediation on the environment.⁶ In contrast, those who took notice of Mexico

City,” *Los Angeles Times*, June 5, 1938, C8; “Embassy Tours & Garza Travel Celebrate 22nd Anniversary of Continuous Mexico Travel Service,” *New York Times*, July 14, 1963, 274; Anita Brenner, “Mexico’s Season On: Its Ancient Cities and Scenic Spots Attract Tourists Seeking ‘Something Different’,” *New York Times*, January 12, 1936.

⁴ “Visibility Cut by Smog in Mexico,” *Los Angeles Times*, October 11, 1959, 20.

⁵ For a detailed explanation on Mexico City’s notorious dust storms and an explanation for why they grew worse during these decades, see Matthew Vitz, “‘The Lands with Which We Shall Struggle’: Land Reclamation, Revolution, and Development in Mexico’s Lake Texcoco Basin, 1910–1950,” *Hispanic American Historical Review* 92, no. 1 (February 2012): 41–71. The frequency and intensity of dust storms led to the *Proyecto Lago de Texcoco*, or the Texcoco Lake Project, to reclaim or rehabilitate the hydrological habitat in the early 1970s. As a result of ecological rehabilitation at the Lake Texcoco site, from 1980 to 1983 only two dust storms inhibited visibility, as compared to six in 1970 to 1973, a 42-percent reduction. Restorative ecologists have analyzed the history and outcome of this initiative, see Roberto Lindig-Cisneros and J. B. Zedler, “Restoring Urban Habitats: A Comparative Study,” *Ecological Restoration* 18, no. 3 (Fall 2000): 184–192.

⁶ For more information on the colonial hydraulic engineering projects and desiccation initiatives that led to the drainage of the Basin of Mexico, see Vera S. Candiani, *Dreaming of Dry Land: Environmental Transformation in Colonial Mexico City* (Stanford: Stanford University Press, 2014). Importantly, twentieth-century dust storms were not unique to Mexico City. As the environmental historian Donald Worster has shown, dangerous and deadly dust storms also hit the US southern plains in the 1930s, and they even had “planetary significance.” Like the *tolvaneras*, the American dust storms were also caused by natural and human factors. A drought, combined with over-farming, produced the conditions that led to what is known as the Dust Bowl. See Donald Worster, *Dust Bowl: The Southern Plains in the 1930s* (Oxford, UK: Oxford University Press, 1975), 4. The Sahara dust cloud, a contemporary

City's incipient air pollution viewed it as a *condition* emblematic of the pursuit of modernity.⁷ Pollution was not portrayed as a momentary inconvenience; that much was made evident from the drawn-out air pollution battles of highly contaminated cities like Los Angeles or London. Rather, dirty air formed part of a new, urbanized landscape. "Smog has come...to [the] Mexican capital," a 1956 newspaper article headline ominously announced, hinting at the uncertainty of its departure.⁸

It is therefore unsurprising that visitors who documented their travels to Mexico City during the 1950s habitually expressed disillusionment with its sky. Some, like William Stockdale of Boston, marked the passage of time by counting the days without visual access to Mexico City's majestic mountainous backdrop. "So far," Stockdale wrote of his first trip to Mexico City in September of 1952, "we have been in Mexico City three days and we have not yet seen Mount Popocatepetl [*sic*]. The city seems either to be blanketed with haze, smog, or clouds whenever we look in his direction."⁹ While such snapshots provide valuable insight into the on-the-ground reactions to perceived changes in Mexico City's air quality, they present a partial picture bound by a particular historical moment. Indeed, hindsight allows us to see that numerous factors are responsible for not only the noticeable decline in Mexico City's air quality going into the second half of the twentieth century, but its sudden onslaught as well as the broader intrigue that it engendered. On a macroscopic level, the 1940s in Mexico marked the intensification of the country's industrialization project, the foundation for which was laid in the late 1920s.¹⁰ Although Mexico began

phenomenon in which dust from the Saharan Desert travels across the Atlantic during the summer months, also illustrates the global reach and impact of dust storms. See Abigail Rosenthal, "The Saharan dust cloud has arrived in Houston. Here's what you need to know," *Houston Chronicle*, June 26, 2020.

⁷ This dissertation understands "modernity" and "modernization" as an elusive and ever-changing goal or standard sought after by the Mexican state. The pursuit of modernity in Mexico encapsulated social, economic, and cultural aims, and its meaning was constantly in flux. In this study, I seek to show how this quest was unevenly performed and experienced via social and political contests over the meaning, use, and production of urban space and the environment. This conceptualization takes inspiration from the concept of "high modernism" in the work of James C. Scott, *Seeing Like a State: How Certain Schemes to Improve the Human Condition Have Failed* (New Haven: Yale University Press, 1998) and Kathryn A. Sloan, *Death in the City: Suicide and the Social Imaginary in Modern Mexico* (Oakland: University of California Press, 2017).

⁸ "Smog Hits Mexico," *Dallas Morning News*, December 14, 1956.

⁹ The Stockdale family devised a practical solution, assuring that "...if the mountain won't come to the Stockdales, why then the Stockdales will go to the mountain." William Stockdale, "Altitude Plays Tricks, Rain Comes Suddenly," *Boston Daily Globe*, September 2, 1952.

¹⁰ Mexican economic historian Enrique Cárdenas Sánchez has written about the industrial development of Mexico prior to 1940, providing vital historical context for Mexico's economic "miracle" following World War II. See Enrique Cárdenas Sánchez, "Mexico's Industrialization during the Great Depression: Public Policy and Private

industrializing during the late nineteenth century under the rule of Porfirio Díaz (1876–1911), the majority of its economic output continued to come from agricultural sources, preventing a full-blown industrial transformation.¹¹ Furthermore, the Mexican Revolution, which included a military phase lasting from 1910 to 1920 and a redistributionist phase from 1920 to 1940, shifted the country’s focus toward the prospect of political consolidation through what would become known by 1946 as the Partido Revolucionario Institucional (Institutional Revolutionary Party, PRI) and fulfilling the revolutionary promise of agrarian and social reform as outlined in the 1917 Constitution.¹²

In the 1940s, however, state-sponsored industrialization led by the PRI, initiated under President Manuel Ávila Camacho (1940–1946) and accelerated by the administration of President Miguel Alemán

Response,” (PhD diss., Yale University, 1982); and *La industrialización mexicana durante la gran depresión* (México, DF: El Colegio de México, 1987).

¹¹ Political scientists and economic historians interested in the character and extent of Porfirian Mexico’s industrial development have produced a diverse body of scholarship consisting of regional case studies, synthetic accounts, industry-specific studies, and comparative perspectives. A useful starting point is Stephen H. Haber, *Industry and Underdevelopment: The Industrialization of Mexico, 1890–1940* (Stanford: Stanford University Press, 1989); for a comparative exploration of the nineteenth-century cotton textile industry, see Stephen H. Haber, “Industrial Concentration and the Capital Markets: A Comparative Study of Brazil, Mexico, and the United States, 1830–1930,” *The Journal of Economic History* 51, no. 3 (September 1991): 559–580; for thematic coverage of economic reforms during the Porfiriato, see Jeffrey L. Bortz and Stephen H. Haber, eds., *The Mexican Economy, 1870–1930: Essays on the Economic History of Institutions, Revolution, and Growth* (Stanford: Stanford University Press, 2002); for a close study of the intersection between industry and the Porfirian state, see Edward Beatty, *Institutions and Investment: The Political Basis of Industrialization in Mexico Before 1911* (Stanford: Stanford University Press, 2001); the definitive treatment of Mexico City’s industrialization trajectory remains Gustavo Garza Villarreal, *El proceso de industrialización en la Ciudad de México (1821–1970)* (México, DF: El Colegio de México, Centro de Estudios Demográficos y Desarrollo Urbano, 1985); for works that cast a broader net chronologically and geographically, see María Eugenia Romero Sotelo, ed., *La industria mexicana y su historia. Siglos VXIII, XIX, y XX* (México, DF: Facultad de Economía, Universidad Nacional Autónoma de México, 1997); Juan Carlos Moreno-Brid and Jaime Ros, *Development and Growth in the Mexican Economy: A Historical Perspective* (New York: Oxford University Press, 2009); Enrique Cárdenas Sánchez, *El largo curso de la economía mexicana. De 1780 a nuestros días* (México, DF: Fondo de Cultura Económica, 2015); and for an exhaustive historiographical overview of Mexico’s economic history more generally conceived, see Richard Salvucci, “Mexico: Economic History,” in *Eh.Net Encyclopedia*, ed. Robert Whaples (Economic History Association, 2018).

¹² This is not to say that economic development was absent during the years of the revolution or post-revolution, but rather that the national economic priorities shifted, particularly during the presidency of Lázaro Cárdenas (1934–1940). See Salvucci, “Mexico: Economic History,” sec. 14 and Cárdenas Sánchez, *La industrialización mexicana*. The PRI was the third and final iteration of Mexico’s one-party political system, originally founded to institutionalize the values of the revolution. It followed the Partido Nacional Revolucionario (National Revolutionary Party, PNR) from 1929–1938, and the Partido de la Revolución Mexicana (Party of the Mexican Revolution, PRM), from 1938–1946. Rebranded as the PRI, it maintained uninterrupted power from 1946 to 2000, leading some scholars to interpret its history as a *dictadura perfecta*, or perfect dictatorship. Peruvian writer Mario Vargas Llosa famously coined the phrase in 1990, during a televised conference held in Mexico titled “El siglo XX: La experiencia de la libertad,” explaining that it was also the *dictadura camuflada* (camouflaged dictatorship), see “Vargas Llosa: ‘México es la dictadura perfecta,’” *El País*, September 1, 1990. See also Octavio Paz, “El siglo XX: La experiencia de la libertad,” *Vuelta* 167 (October 1990): 8–9.

(1946–1952), buttressed the economic productivity of Mexico’s capital, setting in motion a profound transformation of the city’s built environment.¹³ The proliferation of industrial enterprises along the city’s northern perimeter fundamentally altered Mexico City’s urban landscape, including its residential geography, as inhabitants of rural areas migrated to the urban center in droves in response to an abundance of employment opportunities provided by the thriving industrial sector. From 1940 to 1970, for example, the population of Mexico City swelled by 345 percent, an increase caused by a combination of internal migration and high birth rates.¹⁴ Furthermore, behavioral changes accompanied economic growth, most notably the conspicuous consumption of personal motorized vehicles by members of the rising middle class.¹⁵ Estimates vary, but the middle class constituted 20 to 30 percent of the national population in the mid-twentieth century, while the number of vehicles on Mexico City’s roads increased from 31,994 in 1930 to 1.2 million by 1975.¹⁶ The concentration of, and accumulation of outputs from, people, cars, and factories in the valley, whose towering mountains sealed in their copious emissions and fumes, set the conditions for unprecedented atmospheric congestion. This new reality both competed and coexisted with Mexico City’s established reputation as a tourism mecca promising an overall enjoyable experience replete with clear skies, beautiful scenery, and gentle gusts of cool air. And,

¹³ For a thorough examination of the conditions leading to the successful state-led industrialization project under the Alemán administration, see Vanni Pettinà, “Adapting to the new world: Mexico’s International Strategy of Economic Development at the outset of the Cold War, 1946–1952,” *Culture & Digital History Journal* 4, no. 1 (2015): e003, doi: <http://dx.doi.org/10.3989/chdj.2015.003>.

¹⁴ Diane E. Davis, *Urban Leviathan: Mexico City in the Twentieth Century* (Philadelphia: Temple University Press, 1994), Appendix B. Here, I use the percentage calculated by Davis for the Federal District’s population growth, which is the administrative unit to which the four central boroughs of Mexico City belong. See also **Appendix C**.

¹⁵ World Bank, International Bank for Reconstruction and Development, *Report on Mexico’s Creditworthiness*, by G. de Fleurieu and P. Pajunen (Washington, DC: International Bank for Reconstruction and Development, 1950), 2; on the various meanings of the “middle classes” across Mexican households, see the ethnographic work of Dennis L. Gilbert, *Mexico’s Middle Class in the Neoliberal Era* (Tucson: University of Arizona Press, 2007), 10–15; for an exploration of the paradoxical nature of Mexico City’s middle class during the mid- to late twentieth century, see Emilio Mario Coral García, “The Mexico City Middle Class, 1940–1970: Between Tradition, the State, and the United States,” (PhD diss., Georgetown University, 2011); for a study that covers the more recent history of this topic, see Louise E. Walker, *Waking from the Dream: Mexico’s Middle Classes after 1968* (Stanford: Stanford University Press, 2013).

¹⁶ Coral García, “The Mexico City Middle Class,” 23–25. Car ownership statistics before the 1980s are also not exact, see Gloria González Salazar, “Medio Ambiente, urbanismo y planeación,” *El Día*, September 24, 1980, clipping in L0.20.34, Contaminación Ambiental, Campaña, México, Lucha Contra la Contaminación, 1971–1991, Archivos Económicos [hereafter AE], Biblioteca Miguel Lerdo de Tejada [hereafter BMLT], Ciudad de México, México; Ramón Morones, “62,000 kilómetros de asfalto,” *El Excelsior*, July 18, 1968, clipping in 10.01.01, Transporte Urbano, México, 1935–1980, AE, BMLT.

somewhat ironically, as journalists and other writers attempted to reconcile this contradiction through their reports and recollections, they fueled popular interest in the state of Mexico City's air.

By the late 1960s and early 1970s Mexican columnists reporting on the capital's unfolding air pollution adopted strategies reminiscent of those first employed by foreign newspapers a little over a decade earlier, but with one notable development: as the US and the European Union created emissions and ambient air quality standards in the 1967 and 1979, respectively, the language used to assess air pollution grew more technical and the methods for sensing dirty air more scientific.¹⁷ As a result, the descriptive comparisons made by scientists, artists, and correspondents in the 1950s, which relied on affective or personal environmental interactions, gave way to numbers and rankings twenty years later. The Technical Studies Department of the Grupo Financiero of the Banco Nacional de México (the National Bank) demonstrated as much in its 1971 report, which concluded that Mexico City was the seventh most dangerous for "atmospheric poisoning." Looking back on these findings, in 1981 a defeated *El Día* reporter wrote: "As the warnings [of the Banco de México] were not taken into account, now we are among the first place."¹⁸ This journalist's inference foreshadowed arguably the most pivotal moment in Mexico City's contemporary air crisis: its designation as the most polluted place on Earth during the 1992 United Nations Conference on Environment and Development, also known as the Rio de Janeiro Earth Summit.¹⁹ In this very global and public moment, the dark culmination of a half-century of flirting with rankings and skirting disaster, the *esmogópolis*, as Mexico City was known in some circles, had definitively topped all the lists.²⁰

¹⁷ The 1967 US Air Quality Act set acceptable standards for pollutants. See John D. Bachmann, "Will the Circle Be Unbroken: A History of the US National Ambient Air Quality Standards," *Journal of the Air & Waste Management Association* 57, no. 6 (2007): 652–697. Meanwhile, in the EU, the 1979 Long-Range Transboundary Air Pollution law put in place protocols for limiting emissions. Karolina Kuklinska; Lidia Wolska; Jacek Namiesnik, "Air quality policy in the US and the EU: A Review," *Atmospheric Pollution Research* 6 (2015): 129–137.

¹⁸ Report and journalist statement located in Rubén Anaya Sarmiento, "La ciudad de México se encamina irremediablemente al ecodidio: La amenaza latente," *El Día*, June 15, 1981, clipping in L6.04.01, Contaminación Ambiental, Campaña, México, Lucha Contra la Contaminación, 1971–1991, AE, BMLT.

¹⁹ World Health Organization and United Nations Environment Programme, *Urban Air Pollution in Megacities of the World* (Oxford, UK: Blackwell Publishers, 1992), 39; Alexander G. Higgins, "New York, London, Tokyo Rated Cleanest, Mexico City Dirtiest of Big Cities," *Associated Press*, December 1, 1992.

²⁰ Ana Flashner, "Esmogópolis: Lo que no dijimos en la reunión de consulta popular sobre el medio ambiente," *Unomásuno*, October 27, 1982, clipping in L6.04.01, Lucha Contra la Contaminación, Contaminación del Aire, 1970–1986, AE, BMLT.

Aspects of this sketch of the historical development of air pollution in Mexico City throughout the second half of the twentieth century are widely known and events such as UN's 1992 declaration are often used by social scientists as a jumping-off point for inquiry into Mexico City's contemporary battle with its polluted skies, as well as for measurements of the city's success or failure in implementing clean-air reform.²¹ Yet historical experiences of environmental transformation are hardly as linear or as black-and-white as this opening chronology might imply, and rarely are the effects of such changes felt homogeneously across a single population, especially when the impacts are simultaneously inescapable *and* imperceptible as is largely the case with an environmental phenomenon like air pollution. It is these junctures of multiplicitous understanding and uncertainty that this study aims to investigate.

This dissertation asks how knowledge about air pollution in Mexico City was created and what these ideas meant in the context of rapid, capitalistic urbanization and industrial development. It presents and interfaces the multiple, diffuse, and oftentimes contradictory narratives written about the air in order to decipher how this environmental medium, and specifically its polluted derivative, shaped the physical and cultural urban landscape and its inhabitants' lives over time. Such dialogues offer key insight into not only the scientific, political, and cultural understandings of this element's transformative power, but also the ways in which oscillations in the quality of the air affected or disrupted longstanding perceptions of place. This environmental history of air contends that, in spite of clashing attitudes toward, philosophies on, and approaches to the capital's atmospheric deterioration, air was a breeding ground for the generation and transmission of not only environmental and health risk, but a sense of place. Iterations of this risk grew more sophisticated and complex as air pollution became more tangible in the waning decades of the twentieth century—that is, as popular awareness of the changing physical composition of the city's air expanded, and as the number of interested parties claiming a stake in its resolution increased.

²¹ In particular, Indian news outlets gravitate towards these comparisons and see in Mexico City a success story with the capacity to be replicated by other Indian cities. See Amit Bhatt, "Mexico City can show us the way in tackling increasing air pollution," *hindustantimes*, October 15, 2019. In discussing the pollution of Gurugram, located in northern India, the author writes, "Mexico City had the most toxic air in 1992 amongst the top twenty megacities of the world. Gurugram was judged to have [the] most toxic air last year. So, if Mexico City can clean its air, so can Gurugram." Over the past year, Mexico has increasingly advised India on its air pollution, see "Mexico working with India on pollution, climate change," *The Hindu*, December 7, 2018.

Ultimately, the air absorbed and reflected concerns about the city's development, becoming a shared common ground that consolidated politics, citizenship, responsibility, and competing visions of the future. Air defined the city—whether it was the clean variety remembered fondly by early twentieth-century tourists, or the dirty, toxic blend that has threatened its residents since the latter half of the 1900s.

How historical actors made sense of changes in the air in twentieth-century Mexico City was deeply processual, the result of cumulative, long-term efforts, and, far from being an exact science, was relative to people's multitudinous viewpoints, goals, and agendas. The ensuing history, then, is marked by the intersection of political, scientific, technological, medical, legal, affective, and cultural discourses. Neither the production nor the diffusion of these knowledges was unidirectional, of course, but it was fiercely and undeniably power-laden, and this dissertation captures and integrates stories of popular or lay knowledge and self-education taking place on the ground to interrogate how they functioned and commingled with the opinions espoused by a coterie of politicians and scientific experts over several presidential administrations. More often than not, however, the lack of discourse on, or nonattention paid to, air pollution spoke louder than the combination of these diverse streams of knowledge. This study listens to and elevates these silences, arguing that, in many cases, such responses from people in positions of power constituted calculated, political decisions. Finally, idea creation about Mexico City's air pollution did not occur in a vacuum. It was profoundly influenced by various knowledge regimes and interests operating within the US. Like the airborne impurities themselves, opinions, plans, and diplomatic pressures permeated borders, producing transnational flows of information that were at times geared toward veiling rather than ameliorating Mexico City's crisis in the sky.

The construction of knowledge on Mexico City's air pollution during the twentieth century was thus an elaborate but creative process whose parameters were not solely articulated by those occupying positions of authority. It took shape in and was manufactured by newspaper journalism, advertising, and through art and literature as much as in government offices, science laboratories, and monitoring stations. Occasionally, the resulting data complemented an overarching political and economic narrative that privileged the continuation of national growth through modernization via urbanization and industrial

means over environmental protection and conservation. Other times, however, these multifarious forms of understanding exposed the inherent contradictions of and inequalities within dominant notions of progress and development. And, although progressive advancements in science and technology facilitated the ability to demystify, measure, and track airborne contaminants over time, this undertaking was anything but straightforward, nor did the codification of this knowledge into laws and government programs conform to a uniform trajectory. Instead, it meant different things to different people. It was and remains a site for the dynamic interaction of, in the words of Mexican writers Frida Gorbach and Carlos López Beltrán, “cultural practices inserted into complex relations of power.”²²

The Place of Air in (Latin American) Environmental History

Where does air fit in the historiography of Latin American environments? This crucial question drives the study at hand, but it is not one that is reserved for historians of Latin America. Indeed, it applies to environmental history writ large because it calls attention to the field’s deep preoccupation with the terrestrial. Notwithstanding the fracturing of the field by geographic specialization,²³ environmental history is dominated by research agendas concerned with processes, events, and interactions that unfold or take place on material surfaces—on lush forest floors, concrete roads, desert terrain, or, increasingly, in deep seas or waterways, among myriad other physical settings.²⁴ The aerial, or that which is in and of the air, remains elusive and inaccessible. What, then, is the role and purpose of the atmosphere—the

²² Frida Gorbach and Carlos López Beltrán, introduction to *Saberes locales: Ensayos sobre la ciencia en América Latina*, ed. Frida Gorbach and Carlos López Beltrán (Zamora, Michoacán: El Colegio de Michoacán, 2008), 19.

²³ Bioregional specialization has resulted in different scholarly traditions within the field of environmental history, which affects the kinds of questions historians ask, the approaches they take, and conclusions they reach. See Paul Sutter, “What Can US Environmental Historians Learn from Non-US Environmental Historiography?” *Environmental History* 8, no. 1 (January 2003): 109–129.

²⁴ Here, I am influenced by Robert Wellman Campbell, “Down in the Sky: The Promise of Aerial Environmental History,” in *A Field on Fire: The Future of Environmental History*, ed. Mark D. Hersey and Ted Steinberg (Tuscaloosa, AL: University of Alabama Press, 2019), 154–171; aquatic environments, while earthly, have received less attention, see Sritama Chatterjee, “Liquid Geographies, Uneven Worlds: How Do We Talk about Placing Water?” *Environmental History Now*, August 2, 2019, accessed August 5, 2019, <https://envhistnow.com/2019/08/02/liquid-geographies-uneven-worlds-how-do-we-talk-about-placing-water/>; for a historical study that centers waters in Bolivian history see Sarah Thompson Hines, “Dividing the Waters: How Power, Property and Protest Transformed the Waterscape of Cochabamba, Bolivia, 1879–2000,” (PhD diss., University of California, Berkeley, 2015); Kristin A. Wintersteen, *The Fishmeal Revolution: The Industrialization of the Humboldt Current Ecosystem* (Berkeley: University of California Press, Forthcoming).

innumerable gaseous elements and microparticles that make up the air, are reflected in the sky, and carried by the wind—as nature, a component of the environment, and, finally, as an object of historical analysis?²⁵

Amidst the extant scholarship on Latin American environmental history, a field that has developed and proliferated in robust and exciting ways since its founding in the mid-1980s, few scholars place air, and thinking about air, at the heart of historical inquiry of the natural world. This omission is particularly striking when viewed in the context of the present historiographic moment, which draws from the insights of cultural studies and postmodernist theory to emphasize that nature and culture are inextricably intertwined and together form a hybrid landscape. In doing so, the historiography also questions what constitutes “nature” in the first place, with many scholars, including the prolific Linda Nash, concluding that nature is far from static, ahistorical, or something “out there.”²⁶ Nature, it would seem, is in the eye of the beholder, as environmental psychologist Rachel Kaplan has perceptively argued.²⁷ However, very few scholars have grappled with the idea of air as a form of nature or as a natural resource, owing in large part to the question of air’s scale.²⁸ Contrary to Nash’s definition, air *is*

²⁵ On the skies of the Rocky Mountain West, see Alyssa Kreikemeier, “The Life of Air: A Mediation on Studying the Unseen,” *Environmental History Now*, December 19, 2018, accessed January 4, 2019, <https://envhistnow.com/2018/12/19/the-life-of-air/>; as historian Ellen Stroud elucidates, nature and the environment are not synonymous with one another: the environment is “something both more and less than ‘nature,’ at once a material reality separate from ourselves, an enveloping world of which we are a part, and a series of social constructions,” see Ellen Stroud, “Does Nature Always Matter? Following Dirt Through History,” *History and Theory* 42, no. 4 (December 2003): 78.

²⁶ Bruno Latour’s work provides the theoretical foundation for environmental history scholarship attuned to complicating the nature-culture divide, see Bruno Latour, *We Have Never Been Modern*, trans. Catherine Porter (Cambridge, MA: Harvard University Press, 1993); for more on the cultural turn in US environmental history, see Richard White, “From Wilderness to Hybrid Landscapes: The Cultural Turn in Environmental History,” *The Historian* 66, no. 3 (Fall 2004): 557–564; Paul Sutter revisits the notion of hybridity during the age of the Anthropocene, Earth’s current geologic time period wherein human activity is the primary agent of ecological and planetary change, see Paul S. Sutter, “The World with Us: The State of American Environmental History,” *The Journal of American History* 100, no. 1 (June 2013): 94–119; for a global picture of the post-WWII escalation of human impact on the biosphere, known as the Great Acceleration, see John R. McNeill and Peter Engelke, *The Great Acceleration: An Environmental History of the Anthropocene since 1945* (Cambridge, MA: The Belknap Press of Harvard University Press, 2014); on the complication of “nature,” see William Cronon, “Introduction: In Search of Nature,” in *Uncommon Ground: Rethinking the Human Place in Nature*, ed. William Cronon (New York: W.W. Norton, 1996), 25–26; Linda Nash, “The Agency of Nature or the Nature of Agency?,” *Environmental History* 10, no. 1 (January 2005): 67–69.

²⁷ Rachel Kaplan, “Nature in the Eye of the Beholder,” *Michigan Quarterly Review* 40, no. 1 (Winter 2001): 207–217.

²⁸ In their 2002 edited compilation on air quality in Mexico City, chemists Luisa T. Molina and Mario J. Molina write that “[o]nly in the last century has society become aware of the atmosphere itself as a natural resource—held in

something “out there.” As atmosphere, air is vast and unbound to the materiality of the physical world that is often recognized as “nature.” Yet, at the same time, as ingestible (particulate) matter, air is also something that is very much “in” our lives in ways that the physical world is not and can never be: while we cannot touch the sky or feel the clouds, and thus bring these elements into our humanly control, air importantly sustains entire ecosystems and, more intimately, our own fleshly form. In these ways, air is a fundamental example *and* complication of current historiographic debates in environmental history, though it remains largely out of the bounds of the discipline.

Scholars advancing the cultural turn of environmental history have long recognized that the meaning of “nature” is socially determined, culturally represented, and that such constructions carry, in historian Ari Kelman’s words, “causative weight.”²⁹ Latin American environmental historians have fruitfully applied this inference to examinations of some of the most outwardly “natural” places across the region, from the jungles of the vast Amazon to the forest ecologies of Mexico, melding social constructivism into the study of the material, and thus paying tribute to the multidimensionality of such locations. Seth Garfield, for example, has asserted that the Amazon rainforest is a “...social product, forged by people and institutions that have made material and symbolic investments in the region.”³⁰ His 2013 *In Search of the Amazon* demonstrates how a diverse set of actors including the Brazilian state, US manufacturers, and migrant workers, through their varied involvements in the rubber production industry, contentiously made and remade the Amazon, both its physical and its cultural landscape, during the twentieth century. Other historians such as Christopher Boyer in his 2015 *Political Landscapes* has similarly contended that forestland in the Mexican states of Michoacán and Chihuahua was not a neutral physical site. Instead, it was the nexus for contests over the meaning and use of that land, and these clashes then influenced conservation approaches from the late nineteenth century into the late twentieth

common, and sensitive to degradation.” See Luisa T. Molina and Mario J. Molina, eds., *Air Quality in the Mexico Megacity: An Integrated Assessment* (Dordrecht, Netherlands: Kluwer Academic Publishers, 2002), xv.

²⁹ Kelman neatly sums up social constructivism by arguing that while social constructions change with time, this does not negate their impact as useful lenses through which to interrogate histories of environments, see *A River and Its City: The Nature of Landscape in New Orleans* (Berkeley: University of California Press), 9.

³⁰ Seth Garfield, *In Search of the Amazon: Brazil, the United States, and the Making of a Region* (Durham: Duke University Press, 2013), 1.

century.³¹ More recently, environmental historians of Latin America have innovatively integrated premises from fields such as urban political ecology to further disrupt the idealization of nature as something pristine or untouched by humanity, as Matthew Vitz's 2018 *A City on a Lake* exemplifies through its reconceptualization of the urbanization process in Mexico City as inseparable from nonhuman nature.³² Somewhat synchronically, scholars have produced a body of work that embraces expanded definitions of nature, ranging from studies that center natural agents such as animals, insects, and pathogens as dynamic structural forces in historical processes, to those that evaluate the function and meanings of the rather unconventional natures of zoos or prisons, for instance.³³ These compelling advancements have added much-needed nuance to our understanding of the complex human-nature connection, throwing light on how social interactions with the environment color perceptions of the natural world.

Despite these developments, environmental history remains tethered to the tangible, and the atmosphere that encircles us, the most expansive and lively of natures, taken virtually for granted. "Air," as cultural anthropologist Timothy Choy has poetically written, "is left to drift...neither theorized nor

³¹ Christopher Boyer, *Political Landscapes: Forests, Conservation, and Community in Mexico* (Durham: Duke University Press, 2015).

³² Nature, he explains, grew alongside the manmade, or built environment, never fully "torn asunder," see Matthew Vitz, *A City on a Lake: Urban Political Ecology and the Growth of Mexico City* (Durham: Duke University Press, 2018), 6–7; 12–13. For more on urban political ecology, see Anna Zimmer, "Urban Political Ecology: Theoretical Concepts, Challenges, and Suggested Future Directions," *Erdkunde* 64, no. 4 (October–December 2010): 343–354.

³³ Panama disease, caused by a soil-borne fungus, shaped the history of banana monoculture in Honduras, see John Soluri, *Banana Cultures: Agriculture, Consumption, and Environmental Change in Honduras and the United States* (Austin: University of Texas Press, 2005); the classic studies by Alfred Crosby examine the diffusion of organisms, plants, and animals in the conquest of the New World and the impact of biology on European invasions on a broader scale, respectively, see Alfred W. Crosby, *The Columbian Exchange: Biological and Cultural Consequences of 1492* (Westport, CT: Greenwood Press, 1972); and *Ecological Imperialism: The Biological Expansion of Europe, 900–1900* (New York: Cambridge University Press, 1986); mosquitos, too, constituted a considerable hindrance to the construction of the Panama Canal, see Paul Sutter, "Nature's Agents or Agents of Empire? Entomological Workers and Environmental Change during the Construction of the Panama Canal," *Isis* 98, no. 4 (December 2007): esp. 744–753. Research on animals in Latin America and their connection to historical processes such as colonialism or to modern institutions like zoos is thriving and has further enhanced approaches to the study of nature in environmental history, see Martha Few and Zeb Tortorici, eds., *Centering Animals in Latin American History* (Durham: Duke University Press, 2013); Emily Wakild, "Saving the Vicuña: The Political, Biophysical, and History of Wild Animal Conservation in Peru, 1964–2000," *American Historical Review* 125, no. 1 (February 2020): 54–88; elsewhere, the environmental history of prisons has contributed to the blurring of the nature/culture binary, see Clarence Jefferson Hall Jr., "Toward an Environmental History of American Prisons," *Process: A Blog for American History*, June 22, 2017, accessed August 20, 2019, <https://www.processhistory.org/environment-prisons/>.

examined, taken simply as solidity's lack."³⁴ Environmental historians have made headway on the initiative of breaking past this conceptual barrier, however. In 2003 Ellen Stroud suggested that it is the "attention to the natural world—to dirt, water, air, weather, germs, and animals (including humans)—that marks the approach of an environmental historian."³⁵ Historians subsequently found ways to get closer to many of these components, but have hitherto missed a valuable opportunity to investigate air as a form of nature in its own right.³⁶ What implications might this notion, of air as a form of nature and a common good, have for the field overall? For all of the inroads scholars have made into the problematization of accepted definitions of nature, the sky and the air living within it exists with little analytical troubling on the part of the historian, enduring, to a great degree, as a matter of fact. This compels a more urgent question for this air-centric study: Why has air remained largely off-limits to environmental historians?

Beginning with the latter inquiry, this study contends that the absence of interest in air among historians is two-fold. In part, there is a reluctance among scholars in the humanities to approach air due primarily to methodological concerns. Air is a slippery medium, and writing its history breeds requisite questions such as: How does one use air as an artefact through which to examine historical change? Though challenging, the task is not as impossible as it may seem. The study of air is not incompatible with the discipline of history, but its complexities warrant an interdisciplinary approach as the 2014 edited collection *Toxic Airs* makes evident in its showcasing of "a large array of disciplinary approaches...to

³⁴ The problem, Choy asserts, is that solidity "is unconsciously conflated with substance, when only grounding counts for analysis, air can only be insubstantial...It would be a mistake, in other words, to search only for ground when above and around us is substance aplenty." See Timothy Choy, *Ecologies of Comparisons: An Ethnography of Endangerment in Hong Kong* (Durham: Duke University Press, 2011), 144–145.

³⁵ Stroud, "Does Nature Always Matter?," 78.

³⁶ Wind, however, has received more attention. A handful of recent dissertations are promising in the development of the history of wind through analysis of science, technology, and medicine, see Amadea Risha Druckman, "The Nature of the Wind: Myth, Fact, and Faith in the Development of Wind Knowledge in Early Modern England," (PhD diss., Duke University, 2015); Elaine LaFay, "Afflictions of the Tropics' Brink: Medicine, Meteorology, and the Cultivation of Place in the Antebellum Gulf South," (PhD diss., University of Pennsylvania, 2019) and "The Wind Can Blow Through and Through: Ventilation, Public Health, and the Regulation of Fresh Air on Antebellum Southern Plantations," in *Atlantic Environments and the American South*, ed. Thomas Blake Earle and D. Andrew Johnson (Athens, GA: University of Georgia Press, 2020), 38–62; though not a work of history, Stephanie Friede makes a contribution to the cultural understandings of wind in Mexico in "Atmospheric Pressure: An Ethnography of Wind, Turbines, and Zapotec Life in Southern Mexico," (PhD diss., Duke University, 2018).

understand many different perceptions of air.”³⁷ This and other air-minded historical studies now form part of an ambitious field, conceived as recently as 2019, called Atmospheric Humanities, a “trans-disciplinary exercise designed to capture the atmosphere’s agency as it becomes manifest as a medium, life-giver, carrier, nutrient source, threat, and a concern in modern life, politics, and art.”³⁸ Such works rightly rely on histories of science, ideas, medicine, technology, and cultural and sensory history, incorporating sources ranging from literary and artistic production to engineering reports, from weather records to travelogues, and from policy documents to the air quality readings themselves to render air visible in the historical record.³⁹ In undertaking this research, historians routinely speak across entrenched disciplinary divides. They have necessarily engaged with the natural sciences, and especially with chemistry and biology to chronicle, for instance, how people observed and conducted research on the air, covering topics from the professionalization of meteorology to the health impacts of breathing pollution.⁴⁰ They have applied the lessons of and methodologies familiar to the social sciences, most notably anthropology and cultural geography, to center overlooked lived experiences of environmental

³⁷ James Rodger Fleming and Ann Johnson, eds., *Toxic Airs: Body, Place, Planet in Historical Review* (Pittsburgh: University of Pittsburgh Press, 2014), x; the forthcoming edited compilation *Silver Linings: Clouds in Art and Science* takes a similar approach in its “cross-disciplinary study” of clouds “...from perspectives that intersect both art and science,” see Dolly Jørgensen and Finn Arne Jørgensen, eds., *Silver Linings: Clouds in Art and Science* (Trondheim, NO: Museumsforlaget, 2020).

³⁸ Scholars such as historians Vladimir Jankovic and Alexander Hall, phenomenologist Madalina Diaconu, and historical climatologist James R. Fleming are at the forefront of this conceptual consolidation and are organizing the foundational workshop, “Launching the Atmospheric Humanities,” on atmospheric themes to be held in August 2021. See the call for proposals, James Fleming, “Launching the Atmospheric Humanities,” post to H-Net: Humanities & Social Sciences Online, November 22, 2019, accessed November 22, 2019, <https://networks.h-net.org/node/73374/announcements/5418642/launching-atmospheric-humanities>.

³⁹ Sensory history helps center the putrid but invisible airs of nineteenth-century North American cities, see Melanie A. Kiechle, *Smell Detectives: An Olfactory History of Nineteenth-Century Urban America* (Seattle: University of Washington Press, 2017); for a colonial Latin American context, see Kathleen Kole de Peralta, “*Mal Olor* and Colonial Latin American History: Smellscapes in Lima, Peru, 1535–1614,” *Hispanic American Historical Review* 99, no. 1 (2019): 1–30; Sergio López Ramos, *History of the Air and Other Smells in Mexico City, 1840–1900* (Bloomington, IL: Palibrio, 2016). Air is also an implicit consideration of histories of weather, see Vladimir Jankovic, *Reading the Skies: A Cultural History of English Weather, 1650–1820* (Chicago: University of Chicago Press, 2000); other scholars have taken an aerial perspective to study environmentally transformative processes such as war, see Caren Kaplan, *Aerial Aftermaths: Wartime from Above* (Durham: Duke University Press, 2018).

⁴⁰ On the importance of atmospheric chemistry to our understanding of air pollution over time, see Peter Brimblecombe, *The Big Smoke: A History of Air Pollution in London since Medieval Times* (New York: Routledge, 1987) and “Deciphering the Chemistry of Los Angeles Smog, 1945–1995,” in *Toxic Airs: Body, Place, Planet in Historical Review*, ed. James Rodger Fleming and Ann Johnson (Pittsburgh: University of Pittsburgh Press, 2014), 95–108; see also James Rodger Fleming, *Inventing Atmospheric Science: Bjerknes, Rossby, Wexler, and the Foundations of Modern Meteorology* (Cambridge, MA: The MIT Press, 2016).

injustice revolving around unequal access to natural resources.⁴¹ They have also deepened connections with other humanities disciplines such as philosophy to consider how values, beliefs, and morals impact (or not) the way humans interact with their natural surroundings, including our atmosphere, the pollution of which has long been framed as an ethical issue.

Another more conceptual, and perhaps more telling, explanation for the lack of historical research on air is that landforms, the most conspicuous visual elements of landscapes, have overwhelmingly come to represent “nature” and have received the majority of coverage in environmental history scholarship, for it is within geophysical markers that the intricacies of nature-culture interactions are most palpably inscribed. But, as Robert Wellman Campbell has recently pointed out, the aerial also comprises an indispensable, albeit immaterial, feature of ecosystems and of landscapes in every part of the world. Skyscapes, which are made up of transitory atmospheric elements and conditions such as winds and air pollution, sunsets and sunrises, and clouds and stars, also harbor information about historically contingent relationships between nature and culture.⁴² The loss of cherished vistas over time due to ceaseless air pollution, what historical climatologist James Rodger Fleming understands as the formation of “anti-skyscapes,” is merely one of the many ways that environmental change can be read in the atmosphere.⁴³ Expanding the range of scholarly focus to include air has important consequences for the field of environmental history. Looking to the sky, this dissertation maintains, increases the reach of the environmental humanities, pushing environmental thinkers to go beyond the pervasive physicality that continues to characterize the field. In the words of environmental philosopher David Macauley, taking seriously the “complex canopy of air above and around us...offers the potential for deepening our

⁴¹ Reciprocally, urban studies scholar Rohit Negi has recognized the utility of urban environmental history in “contextualiz[ing] air in the *longue durée*,” See Rohit Negi, “Urban Air,” *Comparative Studies of South Asia, Africa and the Middle East* 40, no. 1 (May 2020): 18.

⁴² Wellman Campbell, “Down in the Sky,” 155; 167–168.

⁴³ James Rodger Fleming, “Skyscapes and Anti-Skyscapes: Making the Invisible Visible,” in *The Anti-Landscape*, ed. David Nye and Sarah Elkind (Amsterdam and New York: Rodopi, Studies in Environmental Humanities, 2014), 30.

daily experience of and encounters with the elemental world in which we are sensually immersed and physically embedded.”⁴⁴

While it is innate knowledge that air sustains life, much less thought is given to human interactions with air that tie us ever closer to the Earth. The amalgamation of the gases nitrogen, oxygen, and trace amounts of argon and carbon dioxide, what we know in common parlance as “air,” is indeed humanity’s life support—the “most imperious need of all,” according to nineteenth-century French naturalist Jean-Henri Fabre.⁴⁵ But air is also something altogether grander as novelist Gregory Mone suggests when he writes, “Air connects us to the most distant reaches of this planet, to all the life that has ever lived, even to the universe beyond.”⁴⁶ For example, our daily consumption of this invisible matter, whether clean or dirty, thick or thin, is the most mundane and automatic of our bodily functions. Yet the very act of breathing is also the most intimate of nature-culture entanglements: when we ingest air contaminated with industrial wastes, we bring the politics of development into the body; when we fill our lungs with rarified mountain air, we inhale cultural notions of wellness.⁴⁷ Catherine T. Dunlop has indicated as much in her 2015 article on the Mistral, a powerful wind that periodically chills the otherwise-mild southeastern region of France. In its clever use of nineteenth-century landscape paintings to not only catch sight of this invisible phenomenon but also to explain its transformative impact, Dunlop’s “Looking at the Wind” argues that artistic production fit into larger scientific and medical developments about the wind’s effects. But painting outdoors, or *en plein air*, was as much a form of

⁴⁴ David Macauley, “Head in the Clouds: On the Beauty of the Aerial World,” *Environment, Space, Place* 2, no. 1 (Spring 2010): 147–148.

⁴⁵ Jean-Henri Fabre, “Air, Necessary to Life,” trans. Michaël Attias, *Chicago Review* 51 no. 1/2 (Spring 2005): 131.

⁴⁶ Gregory Mone, “Everything on Earth Is in the Air,” *Discover*, June 7, 2007, <http://discovermagazine.com/2007/jun/blowing-in-the-wind>; see also the work of chemist Gabrielle Walker, *An Ocean of Air: A Natural History of the Atmosphere* (London, UK: Bloomsbury Publishing, 2007).

⁴⁷ In my use of the concept of entanglement, I engage the field of cultural anthropology. Elizabeth F. S. Roberts’s study of toxic effluvia in a working-class neighborhood of Mexico City (pseudonymized as Colonia Periférico) explains that “[e]ntanglement allows us to understand how outsides and insides are constantly co-constituted across different lived worlds.” Using the example of a gene, she adds that “[a]ll of the entities that looked bounded through misguided modernist lenses are embedded in a myriad of relations and, in fact, do not exist without them.” Entanglement, then, is “...the messy and entangled relations that produce existence.” Her work, however, shows that “entanglement is not always welcome,” as in the case of Colonia Periférico, where residents who are unequally exposed to environmental dangers (“those living in the shit,” as Roberts puts it) “seek boundaries between objects” that allow for their persistence. See Elizabeth F. S. Roberts, “What Gets Inside: Violent Entanglements and Toxic Boundaries in Mexico City,” *Cultural Anthropology* 32, no. 4 (November 2017): 594, 596

consumption as it was a method for the representation of the epiphenomenal. Painters, enveloped by gusts of frigid air, also took in contemporary beliefs surrounding the fierce wind, reproducing them in their masterpieces. Expounding further, she writes,

While European artists could never ‘look at’ the Mistral directly, they could use their paintbrushes, tubes of color, and canvases to describe the wind’s dramatic effects on the things they *could see*: land, water, vegetation, and people... Each of their images bore the influence of emerging nineteenth-century disciplines, including meteorology and ethnography, which empowered Europeans with new systems of knowledge for understanding the workings of the wind.⁴⁸

Human-environment interconnections, the essence of the enterprise of environmental history, extend beyond the land. Earth’s skies and the airs that constitute them are a fundamental space and medium through which to explore these ties further.

Though worlds and centuries apart from Dunlop’s French paintings, the cities of modern Latin America provide key settings for the centering of air and the sky in environmental history. While this dissertation concentrates on one metropolitan area, Latin America’s twentieth-century experience of urbanization was pervasive, spawning megacities across the entire region. And while the foundations for many of these urban complexes were set in the pre-colonial and colonial eras, the legacies of which have been neither erased nor forgotten as art historian Barbara Mundy persuasively illustrates in *The Death of Aztec Tenochtitlan, the Life of Mexico City*, it was the prolonged and concentrated urban-industrial growth of the twentieth century, Latin America’s “second wave of urbanization,” that sowed the veritable anthropogenic pollution problem that this dissertation examines.⁴⁹ That air pollution is a “byproduct” of twentieth-century urban growth, a manmade disaster in many respects, and technology its most frequently proffered solution is a story that, while well-told, leaves much for the historian to unpack. Scholars have, for example, already begun to unpack the timelines associated with pollution, venturing to

⁴⁸ Catherine T. Dunlop, “Looking at the Wind: Paintings of the Mistral in Fin-de-Siècle France,” *Environmental History* 20, no. 3 (July 2015): 506, 516.

⁴⁹ Barbara E. Mundy, *The Death of Aztec Tenochtitlan, the Life of Mexico City* (Austin: University of Texas Press, 2015); Lise Sedrez and Regina Horta Duarte, “The Ivy and the Wall: Environmental Narratives from an Urban Continent,” in *A Living Past: Environmental Histories of Modern Latin America*, ed. John Soluri, Claudia Leal, and José Augusto Pádua (New York: Berghahn Books, 2018), 152.

explore its pre-twentieth-century history.⁵⁰ Accordingly, this dissertation blends environmental history with three distinct bodies of knowledge: urban history, the history of disaster, and the history of science and technology, seeking to construct a more intricate account about air's centrality to the history of Mexico City and the decisions that led to the staggering atmospheric changes Mexico City experienced in its mid-twentieth-century pursuit of modernity. By unifying these historiographic communities, this dissertation resists an easy but tired narrative of the historical development of air pollution, the most conventional of which follows that as the city industrialized in the mid-twentieth-century, air pollution grew worse. The story is much more complicated, chronologically expansive, and is replete with historically specific debates—political, social, and scientific in nature—over the validity of competing knowledges about the air. Fusing discussions of urban politics and governance, the discourse and politics of disaster, and of science and technology into an environmental history of air lays bare these complexities.

While historians have long incorporated urban considerations into the economic, social, and political histories of Latin America, the same cannot be said for its environmental history, which has only recently begun to combine the two fields into a single lens.⁵¹ In the ten years since Lise Sedrez first called attention to the conspicuous absence of the urban in environmental histories of Latin America, an appeal motivated by the impressive finding that “80 percent of the population in Latin America lives in urban areas and [that] the region has four of the world’s largest cities (São Paulo, Rio de Janeiro, Mexico City, and Buenos Aires),” historians have enthusiastically embraced the task, resulting in innovative portraits of

⁵⁰ In its study of London’s pre-1800s smoke history, William M. Cavert’s *The Smoke of London* marks a departure from the majority of works loosely concerned with air pollution, which tend to be temporally situated in the age of “modern industrial capitalism.” See William M. Cavert, *The Smoke of London: Energy and Environment in the Early Modern City* (Cambridge, UK: Cambridge University Press, 2016), 6. While interested mainly in the post-1940s era, this dissertation recognizes the heretofore imbalanced coverage and attempts to address it through a study of the more distant, colonial and nineteenth-century environmental and atmospheric narratives in its first chapter. On the issue of contemporaneity in environmental history more broadly, see Sverker Sörlin, “The Contemporaneity of Environmental History: Negotiating Scholarship, Useful History, and the New Human Condition,” *Journal of Contemporary History* 46, no. 3 (2011): 610–630.

⁵¹ An excellent historiographical survey of the urban historiography of Latin America is Gerardo Martínez, “Urban historiography in Latin America: A comparative perspective of research routes,” *Urban History* 46 (December 2018): 1–20.

the lived experience of landscape transformation and a flourishing urban-environmental historiography.⁵² There is now a recognizable “centrality of cities” in Latin American environmental history, as Sedrez and Regina Horta Duarte argue in the 2018 compilation *A Living Past*, and a consensus that “*urban nature*, which unites trees and buildings, rivers and streets, animals and automobiles, food and trash, is just as much as part of Latin American environmental history as its mountains, forests, deserts, and mines.”⁵³

This study builds on the concept of urban nature presented by Sedrez and Horta Duarte, viewing polluted air as more than an undesirable and unhealthy side effect produced by the city. While the health and aesthetic effects of ambient pollution are thoroughly explored here, both because these are the very real consequences of environmental contamination and because historical knowledge about deteriorating air quality was primarily couched under the context of these criteria, this dissertation seeks to delve deeper into this all-encompassing force of environmental change. It does so by arguing that air pollution in Mexico was a vital constituent of urban nature itself, epitomizing “not only degraded nature, but also [generating] a new landscape” over the centuries.⁵⁴ Like water, soil, forestland, and wildlife (natural resources that exist as highly regulated elements of the city but nonetheless contribute, as public policy analyst Rachel Slater and geographer Chasca Twyman have shown for southern Africa, to “urban

⁵² Lise Sedrez, “Latin American Environmental History: A Shifting Old/New Field,” in *The Environment and World History*, ed. Edmund Burke III and Kenneth Pomeranz (Berkeley: University of California Press, 2009), 267–268; for recent works that incorporate the urban into the environmental, see José Luis Lezama and José B. Morelos, eds., *Population, city, and environment in contemporary Mexico* (México, DF: El Colegio de México, 2006); Regina Horta Duarte, “Urban Trees and Urban Environmental History in a Latin American City: Belo Horizonte, 1897–1964,” *Global Environment* 2, no. 3 (2009): 120–153; Harold L. Platt, *Building the Urban Environment: Visions of the Organic City in the United States, Europe, and Latin America* (Philadelphia: Temple University Press, 2015); Germán Vergara, “Fueling Change: The Valley of Mexico and the Quest for Energy, 1850–1930,” (PhD diss., University of California, Berkeley, 2015); Anna Rose Alexander, *City on Fire: Technology, Social Change, and the Hazards of Progress in Mexico City, 1860–1910* (Pittsburgh: University of Pittsburgh Press, 2016); Shawn William Miller, *The Street Is Ours: Community, the Car, and the Nature of Public Space in Rio de Janeiro* (Cambridge, MA: Cambridge University Press, 2018).

⁵³ Sedrez and Horta Duarte, “The Ivy and the Wall,” 152, 158; Curiously, the editors do not consider urbanization as among the defining features that encapsulate the “Latin American” in Latin American environmental history, identified by this work as: Iberian colonialism, nineteenth-century state-building projects, transoceanic material exchanges and the ecological consequences of export economies, and the diverse and unequal experiences of tropical ecosystems. Mark Carey has previously explored some of these themes, and, seeing them as limiting, has proposed ways to go beyond; see Mark Carey, “Latin American Environmental History: Current Trends, Interdisciplinary Insights, and Future Directions,” *Environmental History* 14, no. 2 (April 2009): 221–252. Recent studies of suburbanization offer a promising avenue for the development of Mexican environmental history. See, for example, Alfonso Pérez-Méndez, “Advertising suburbanization in Mexico City: El Pedregal press campaign (1948–65) and television programme (1953–54),” *Planning Perspectives* 24, no. 3 (July 2009): 367–379.

⁵⁴ Sedrez, “Latin American Environmental History,” 268.

livelihoods in ‘hidden’ ways”) air, too, became pertinent to urban governance.⁵⁵ Air and pollution were the subject of policies, conferences, and town forums; they fit into the domain of experts and ordinary citizens alike, as both technical expertise and daily, corporeal interactions with air were important in knowledge creation; they led to new preoccupations about public health and quality of life. The air, in short, played a crucial role in shaping the character of the city.

As much as it was both part and product of the expanding built environment, this dissertation does not lose sight of the fact that air pollution is also an environmental phenomenon prone to changing intensities, waxing and waning in relation to meteorological conditions such as winter temperature inversions. In a reversal of standard air flow behavior, warm air at higher altitudes traps cold, stagnant air infused with dust particles, smoke, and automobile and industrial emissions, forming a cap that prevents contaminants from dispersing into the atmosphere as they normally would, thus spelling out disaster for residents at the surface. Lasting anywhere from a few hours to multiple days, episodic inversions made plain the latent dangers of polluted air. Because of this, inversions were frequently associated with catastrophe towards the last third of the twentieth century in Mexico City, when air pollution reached its most flagrant and extreme levels and led to recurrent air emergencies.⁵⁶ Adverse weather events notwithstanding, for many residents the omnipresence and quotidian experience of air pollution was enough of a peril during the closing decades of the twentieth century that they openly acknowledged they were living through a prolonged, invisible disaster. “We are heading towards self-destruction,” cautioned a journalist for *Unomásuno* in 1982, applying an apocalyptic tone common in environmental reporting of this period in Mexico City’s history, “the problem of pollution, although silently, has advanced, little by little, but irreversibly...making us aware of its consequences through illnesses and death.”⁵⁷ Tales such as

⁵⁵ The use of the word “hidden” implies that certain public benefits of natural resources tend to be overlooked such as in the case of land and water used for public parks and water supply, respectively. Chasca Twyman and Rachel Slater, “Hidden livelihoods? Natural resource-dependent livelihoods and urban development policy,” *Progress in Development Studies* 5, no. 1 (January 2005): 2.

⁵⁶ Juan Manuel Vignon, “La ‘inversión térmica,’ un alerta sobre el riesgo de una catástrofe,” *El Universal*, January 17, 1986, clipping in L6.04.01, Lucha Contra la Contaminación, Contaminación del Aire, 1970–1986, AE, BMLT.

⁵⁷ Francisco Lupian Mejía, “Nos encaminamos hacia la autodestrucción,” *Unomásuno*, May 13, 1982, clipping in L6.04.01, Lucha Contra la Contaminación, Contaminación del Aire, 1970–1986, AE, BMLT.

this, of mass asphyxiation and ecocide, were manufactured and consumed on a daily basis, signaling to a generational, slow-moving disaster perpetually brewing amidst the clouds.

This and many other similarly worded reports reveal that the language of disaster is pivotal to decoding how historical actors understood not only the air they breathed but, by extension, the city itself during the twentieth century, evincing performance studies scholar Sujay Pandit's claim in his 2016 dissertation, "Failed Spaces," that "disaster has always already written itself onto the landscape..."⁵⁸ However, as literary critic Mark D. Anderson has underscored in *Disaster Writing*, and theorist Michel Foucault has more broadly expressed in his studies on knowledge production, discourse—and especially discourse on disasters—is also steeped in political concerns and has the power to "reauthorize or deauthorize political figures and ideologies."⁵⁹ In the case of late-twentieth-century Mexico City, to designate air pollution as a disaster through official channels was to legitimize its existence as outside of the confines of the socially acceptable, acknowledge its deleterious effects on human health, and call firmly into question decades of developmentalism and economic progress. To oppose such a categorization, on the other hand, was to assert normalcy, downplay certain scientific and medical conclusions while completely invalidating others, and forge ahead in the grand quest for modernity. Former president of Mexico, Luis Echeverría Álvarez (1970–1976), reflected such sentiments in his opening address at the twenty-sixth session of the UN General Assembly held in New York in 1971, a year in advance of the UN Conference on the Human Environment in Stockholm. "Industrialization often produces pollution," he conceded in front of cameras and peers, "yet it is evident that no attempts should be made to hold back the development process. Any measure that hinders industrial progress in

⁵⁸ Sujay Pandit, "Failed Spaces: Disaster and Affective Performance in the United States," (PhD diss., New York University, 2016), 5; similarly, in her ethnographic study of the social memory of flooding in Argentina, Susann Ullberg states that "...we need to see the crisis *as* the context rather than *in* the context..." see Susann Ullberg, "Watermarks: Urban Flooding and Memoryscape in Argentina," (PhD diss., Stockholm University, 2013), 7.

⁵⁹ Mark D. Anderson, *Disaster Writing: The Cultural Politics of Catastrophe in Latin America* (Charlottesville: University of Virginia Press, 2011), 191; on the interworking of power-knowledge through discourse, see Michel Foucault, *The Archaeology of Knowledge and the Discourse on Language*, trans. A.M. Sheridan Smith (New York: Pantheon Books, 1982); and *Power/Knowledge: Selected Interviews and Other Writings, 1972–1977*, ed. Colin Gordon, trans. Colin Gordon, Leo Marshall, John Mepham, and Kate Soper (New York: Pantheon Books, 1980).

the weaker [Latin American] countries would be even less acceptable.”⁶⁰ Air was indeed powerful. Classifying air as disastrous or not was thus an exercise of power that could disrupt or reinforce the cultural hegemony upon which post-1940s Mexico City functioned.⁶¹ However, there is little in the scholarly literature that connects air pollution to disaster, despite primary sources denoting otherwise. Air pollution crises develop silently, lacking the violent encounters that typify rapid-onset disturbances such as earthquakes, floods, hurricanes, oil spills, chemical explosions, and others—events that fit neatly into the conventional definition of “disaster,” whether they are determined to be orchestrated by nature, human activity, or a mixture of both.

To be sure, scholars interested in disaster have found in Latin America and the circum-Caribbean an especially plentiful terrain for the examination of cataclysmic phenomena. As geographer Edgardo Manuel Latrubesse has stressed, geomorphological particularities dictate the “complex environmental realities at play in different parts of the region,” in effect producing unique disaster profiles for each country.⁶² This variety in environmental hazards has nurtured an especially active disaster historiography for Latin America.⁶³ Earthquakes, volcanic eruptions, hurricanes, glacial melting, forest fires, floods,

⁶⁰ United Nations, General Assembly Official Records, 26th Sess., 1952nd plen. mtg., UN Doc A/PV.1952 (October 5, 1971), available from <https://undocs.org/en/A/PV.1952>.

⁶¹ For more on the theory of cultural hegemony, see Antonio Gramsci, *Selections from the Prison Notebooks*, ed. and trans. Quinton Hoare and Geoffrey Nowell Smith (London, UK: Lawrence & Wishart, 2005).

⁶² Edgardo Latrubesse, “Geoclimatic Hazards and Environmental Disaster in Latin America: Human Dimensions and Future Challenges,” *Llilas Benson Magazine*, March 14, 2016, <https://llilaLsbensonmagazine.org/2016/03/14/geoclimatic-hazards-and-environmental-disasters-in-latin-america/>; for a deeper look at country- or region-specific hazards in Latin America, see Edgardo Labutresse, ed. *Natural Hazards and Human-Exacerbated Disasters in Latin America* (Oxford, UK: Elsevier, 2010). Mexico City’s mountainous geography uniquely contributes to the persistence of air pollution. Mexico City is thus naturally prone to air pollution simply due to its topography. More specifically, Mexico City lies at the bottom of an endorheic, or enclosed, basin and is flanked by towering mountains on nearly all sides. These geographic features facilitate particulate accumulation in two key ways: the curved, sloping walls of the basin in effect form a bowl that collects contaminants while the surrounding mountain ranges prevent their dispersal, trapping and immobilizing pollution-saturated air masses near to the valley floor. For more on the ecology of the area, see Exequiel Ezcurra, *De las chinampas a la megalópolis: El medio ambiente en la Cuenca de México* (México, DF: Fondo de Cultura Económica, 1991). Mexico City’s air is thinner (has a lower oxygen concentration) due to the high altitude of the valley. As Martha Scheingart explains, this effectively leaves more room for pollutants in the chemical makeup of the atmosphere: “there is an increase of 30 percent in hydrocarbons and 100 percent in carbon monoxide produced compared to that produced at sea level.” Martha Scheingart, “The environmental problems associated with urban development in Mexico City,” *Environment and Urbanization* 1, no. 1 (April 1989): 44, fn. 16..

⁶³ Notable historical studies of disaster in Latin America include Louis Pérez Jr., *Winds of Change: Hurricanes and the Transformation of Nineteenth-Century Cuba* (Chapel Hill: University of North Carolina Press, 2001); Bonham C. Richardson, *Igniting the Caribbean’s Past: Fire in British West Indian History* (Chapel Hill: University of North Carolina Press, 2004); Jürgen Buchenau and Lyman Johnson, eds., *Aftershocks: Earthquakes and Popular Politics in Latin America*

landslides, and more form the repertoire of geoclimatic threats that, time and again, wreak havoc on life, property, and ecosystems, giving rise to what Greg Bankoff terms “cultures of disaster,” populations for whom such hazards are woven into the societal fabric.⁶⁴ Other scholars have shown that, in addition to the “spectacular, camera-ready” catastrophes that monopolize disaster research, silent or slow-moving phenomena affect, and are engrained in, societies in equally deadly ways over the long term.⁶⁵ In this regard, one of the most influential works on silent disasters, sociologist Eric Klinenberg’s 2002 *Heat Wave*, resoundingly demonstrated that disaster can manifest in ways that go unrecognized by governments, aid organizations, and the afflicted communities themselves. These calamities produce few graphic images, lack dramatic action, and belatedly divulge their death counts, occasioning what Rob Nixon has labeled “slow violence,” a “violence of delayed destruction that is dispersed across time and space, an attritional violence that is typically not viewed as violence at all...neither spectacular nor instantaneous, but rather incremental and accretive...”⁶⁶ Notable in these cases is the apparent absence of natural destruction as trees remain upright and foliated, infrastructure unscathed, and skies ostensibly untainted throughout slow and silent disasters.

Although *Heat Wave* is a case study of Chicago, where in July 1995, 739 people succumbed to excessively hot weather, Klinenberg’s tactic of “denaturalizing nature” by looking instead to the “social etiology” of the disaster provides a framework to help locate or render visible other disasters that have

(Albuquerque: University of New Mexico Press, 2009); Mark Carey, *In the Shadow of Melting Glaciers: Climate Change and Andean Society* (New York: Oxford University Press, 2010); Sherry Johnson, *Climate and Catastrophe in Cuba and the Atlantic World in the Age of Revolution* (Chapel Hill: University of North Carolina Press, 2011); and Christopher M. Church, *Paradise Destroyed: Catastrophe and Citizenship in the French Caribbean* (Lincoln: University of Nebraska Press, 2017).

⁶⁴ Greg Bankoff, *Cultures of Disaster: Society and Natural Hazard in the Philippines* (London, UK: RoutledgeCurzon, 2003); historical geographer Georgina Endfield reached similar conclusions in her analysis of climate events such as drought in colonial Mexico, see Georgina H. Endfield, *Climate and Society in Colonial Mexico: A Study in Vulnerability* (Malden, MA: Blackwell Publishing, 2008); political scientists Richard Stuart Olson and Vincent T. Gawronski see disruptive events such as Mexico City’s 1985 earthquake as gashes formed in a living, societal tapestry. They write, “Metaphorically, if we think of societies as weaving daily tapestries, a disaster is a gash...suddenly introduced in the pattern...society repairs/reweaves itself and moves on.” See Richard Stuart Olson and Vincent T. Gawronski, “Mexico as a Living Tapestry: The 1985 Disaster in Retrospect,” *Natural Hazards Observer* 30, no. 1 (September 2005): 1; “Tapping Collective Memory of Disaster: Getting ‘Inside’ the 1985 Mexico City Earthquakes,” *International Journal of Mass Emergencies and Disasters* 19, no. 3 (November 2001): 297–322.

⁶⁵ Eric Klinenberg, *Heat Wave: A Social Autopsy of Disaster in Chicago* (Chicago: University of Chicago Press, 2002), 17.

⁶⁶ Rob Nixon, *Slow Violence and the Environmentalism of the Poor* (Cambridge, MA: Harvard University Press, 2011), 2.

been similarly written off by governments or regulatory entities. As Klinenberg cogently states, “examining the ways in which features of the catastrophe were brought to light or concealed helps to make visible the systems of symbolic production that structured the public understandings of disaster.” This approach also reinforces the widely applicable claim in disaster studies that “damage is induced by the climate but organized by societies and their governments.”⁶⁷ Literary critic Judith Sierra-Rivera has shown how Klinenberg’s conclusions can be applied to a Latin American context. Her 2018 *Affective Intellectuals* denaturalizes the momentous 1985 Mexico City earthquake, maintaining that the natural devastation brought on by destructive seismic waves was but symptomatic of the real crisis: the “true catastrophe” of the “dysfunctional system” of neoliberalism. While the earthquake itself bore, from the moment of impact, the mark of a crisis scenario, and has since been memorialized as such in national history, the other disaster, the “lack of maintenance in some cases and serious flaws in building structures in others [and] the state’s bureaucratic inefficiency to respond accurately to the emergency...” captured headlines for only a month afterwards. At that point, Sierra-Rivera writes that the National Reconstruction Commission decided that “the city and the country were ready to move on,” in effect leaving the “most impoverished and affected sectors of the city...to struggle for years to come against a governmental reticence to acknowledge and address their struggles.”⁶⁸ Klinenberg’s strategy, as well as Sierra-Rivera’s application of it to Mexican history, serves as a useful model for the investigation of other phenomena, like air pollution, which are doubly disavowed: first, because of their inability to conform to standard disaster typologies and timescales; and second, because this indefinability is commonly appropriated by powerful figures to project and enforce specific narratives bent on concealing or downgrading the extent of the risk.

Akin to fog, hot or cold temperature, and other atmospheric states, air pollution is not a disaster in the conventional sense. It is, above all, a *condition* whose extremely volatile nature assures that it is never too far from *ascension* to the ranks of disaster. Strong bouts of air pollution can be seasonal

⁶⁷ Klinenberg, *Heat Wave*, 11, 244, 23.

⁶⁸ Judith Sierra-Rivera, *Affective Intellectuals and the Space of Catastrophe in the Americas* (Columbus: The Ohio State University Press, 2018), 7–9; 23–24.

experiences, and thus recognized by societies as displeasing but predictable, causing something of a momentary suffering. They can be of a prolonged duration; which communities can normalize as a new reality. Or, they can be wholly unexpected, especially when connected to other shocks such as chemical explosions, in which case they tend to be immortalized as extremely painful and costly ruptures. To account for this variability in the act of definition, this dissertation takes a chronologically broad approach to illuminate the changing social conceptualizations of Mexico City's air, including society's "pollution beliefs," searching as well for the systems and processes that functioned to enforce certain visions of the city's environment.⁶⁹ Indeed, a historical examination of Mexico City's air pollution reinforces geographer Craig E. Colton's assertion that, while all living organisms produce waste, "society determines how much waste in air, in water, or on land constitutes an undesirable situation."⁷⁰

Building on foundational works such as anthropologist Anthony Oliver-Smith's "Peru's Five-Hundred-Year Earthquake," recent literature on the study of disasters, whether sudden or gradual, ear-splitting or silent, opens interpretive space for the framing and analysis of air pollution as disaster. Works such as Caroline Grego's 2019 dissertation on the major 1893 South Carolinian hurricane are a prime example of a methodological shift wherein concentration is placed less on the immediate impact of the transformative event and more on "telescop[ing] outward" to access the long-term processes that are both implicated in the creation of and set off by the disaster.⁷¹ Not surprisingly, the discipline of history has enjoyed a new visibility in disaster studies owing largely to this transition. And, while disaster studies researchers in the social and natural sciences generally avoid straying too far from, and often write close to or in the moment of, the catastrophe at hand in their analyses of crisis management and risk

⁶⁹ Historian Stephen Mosley employs the term "pollution beliefs" to describe both popular ideas about pollution (the stories people told about it and their perceptions of it) and how they fit into a wider knowledge system. Reference *The Chimney of the World: A History of Smoke Pollution in Victorian and Edwardian Manchester* (New York: Routledge, 2008), 10–11.

⁷⁰ Craig E. Colton, "Waste and Pollution: Changing Views and Environmental Consequences," in *The Illusory Boundary: Environment and Technology in History*, ed. Martin Reuss and Stephen H. Cutcliffe (Charlottesville: University of Virginia Press, 2010), 171.

⁷¹ Caroline Grego, "Disruption, Dispossession, and the Great Sea Island Storm of 1893," (PhD diss., University of Colorado at Boulder, 2019); see also Anthony Oliver-Smith, "Peru's 500-Year-Earthquake: Vulnerability in Historical Context," in *The Angry Earth: Disaster in Anthropological Perspective*, ed. Anthony Oliver-Smith and Susanna M. Hoffman (New York: Routledge, 1999), 74–88.

assessment, scholars such as Bas van Bavel and Daniel Curtis have proposed a more intentional use of history in the study of disasters.⁷²

In their 2016 article, “Better Understanding Disasters by Better Using History,” van Bavel and Curtis contend that the historical perspective, with its wide temporal scope and unique propensity for contextualization, is necessary for the “long-term reconstruction of the social, economic, and cultural impact of hazards and shocks [that is] simply not possible in contemporary disaster studies material.” Furthermore, integrating historical methods and evidence into disaster research allows scholars to “take in institutions not specifically geared to preventing or mitigating disasters and to consider these institutions not in isolation but within their very specific and oft-diverse social contexts.”⁷³ An implicit argument of this dissertation, then, is that history is key to unveiling an environmental disaster hiding in plain sight in Mexico City. In response to van Bavel and Curtis’s convincing petition for the forging of a “helicopter view” of disasters, one which “plac[es] the disaster...into a perspective over the course of human development,” this study contributes an analysis of institutions functioning at varying scales and timeframes, including the formal governmental structures situated at the city, state, and national levels tasked with pollution abatement; the local media; industry and commercial interests operating both within and outside of Mexico; cultural-scientific networks consisting of academics, doctors, chemists, travelers and artists; and informal peer groups whose lived experiences of the city’s air pollution add depth to the way the disaster is construed.⁷⁴

⁷² Indeed, urgency is baked into the production of scholarship on disasters. In their study of the January 1994 Northridge earthquake that hit California’s San Fernando Valley, Robert Bolin and Lois Stanford explain that “[t]here was a certain urgency in getting the book written before too many years pass since the disaster, or for that matter, before another earthquake occurred...” see Robert Bolin and Lois Stanford, *The Northridge Earthquake: Vulnerability and Disaster* (New York: Routledge, 1998), x.

⁷³ For an overview of the field, see Kathleen J. Tierney, “From Margins to the Mainstream? Disaster Research at the Crossroads,” *Annual Review of Sociology* 33 (2007): 503–525; Christof Mauch and Christian Pfister, eds., *Natural Disasters, Cultural Responses: Case Studies Toward a Global Environmental History* (Lanham, MD: Lexington Books, 2009); Bas van Bavel and Daniel Curtis, “Better Understanding Disasters by Better Using History: Systematically Using the Historical Record as One Way to Advance Research into Disasters,” *International Journal of Mass Emergencies and Disasters* 34, no. 1 (March 2016): 146.

⁷⁴ Van Bavel and Curtis, “Better Understanding Disasters,” 158; for an examination of the Mexican media’s role in “selling” environmental crisis during the 1980s, see Adam Behrman, “Selling Narratives of a Mexico in Crisis: Environmental Reporting in *Excelsior* and *Uno Más Uno*, 1983–84,” (Master’s thesis, Boise State University, 2016). Popular culture, too, impacts the way societies construe disaster, see Ailise Bulfin, “Popular culture and the ‘new human condition’: Catastrophe narratives and climate change,” *Global and Planetary Change* 156 (2017): 140–146.

“[I]nvisibility is a strange feature of this crisis,” notes journalist Beth Gardiner in her 2019 comparative and global study of urban air pollution, *Choked*.⁷⁵ Indeed, pollution comes in a variety of forms, from dust to smoke to gas, but even dirty air is observable by the naked eye only on occasion, usually during spells of substantial congestion, and only if one is attuned to noticing. As Gardiner stipulates, however, air pollution’s invisibility is multifaceted. It is not simply a visually deceptive and tricky phenomenon; its health and ecological impacts are also impalpable without aid provided by external devices and the medical professionals or technical experts who are trained to wield them. As historian Frank Uekötter’s 2009 *The Age of Smoke*, a study of coal smoke pollution control measures in Germany and the US, highlights, societies have historically relied on technologies and scientific innovation to sense and make sense of atmospheric pollution. Some solutions, like the pre-World War I smoke-consuming apparatuses that Uekötter evaluates, widely and aggressively advertised as “cure-alls” and “universal panaceas,” were nothing more than technological fixes, what historian Thomas P. Hughes defines as “partial and reductionist responses to complex problems.”⁷⁶ An environmental history of air must therefore also communicate with the history of science and technology, and must contend with the material culture of the atmosphere.⁷⁷ Placing a spotlight on technology complicates declensionist narratives of environmental change—those that overwhelmingly emphasize ecological decline at the hands of humankind—at the same time that it thwarts the myth of inevitable progress.⁷⁸ Technologies

⁷⁵ Beth Gardiner, *Choked: Life and Breath in the Age of Air Pollution* (Chicago: University of Chicago Press, 2019), 5. Covering pollution (hi)stories from China, Delhi, and Malawi, in addition to the more customarily explored European countries and US cities, Gardiner’s work is an excellent resource for the study of the global air pollution problem. The Latin American experience, however, is conspicuously absent, and is only the most recent evidence of the region’s persistent underrepresentation, which this dissertation seeks to remedy.

⁷⁶ Frank Uekötter, *The Age of Smoke: Environmental Policy in Germany and the United States, 1880–1970* (Pittsburgh: University of Pittsburgh Press, 2009); “Solving Air Pollution Problems Once and for All: The Potential and Limits of Technological Fixes,” in *The Technological Fix: How People Use Technology to Create and Solve Problems*, ed. Lisa Rosner (New York: Routledge, 2004), 156, 160; Thomas P. Hughes, afterword to *The Technological Fix: How People Use Technology to Create and Solve Problems*, ed. Lisa Rosner (New York: Routledge, 2004), 241.

⁷⁷ Evolutionary biologists have used birds as a vehicle to study nineteenth-century carbon pollution, for example. See Shane G. DuBay and Carl C. Fuldner, “Bird specimens track 135 years of atmospheric black carbon and environmental policy,” *Proceedings of the National Academy of Sciences of the United States of America* 114, no. 43 (October 2017): 11321–11326.

⁷⁸ The declensionist perspective also holds that human engagements (whether on an individual level or collectively as part of a human-created economic system, like capitalism) with their natural surroundings negatively impact the environment. For a discussion of declensionism in Latin American environmental historiography, see Carey, “Latin American Environmental History,” 226–227.

are sometimes crucial facilitators of environmental monitoring and management, and can thus improve pre-existing problems and reduce the occurrence of future ones. Other times, as theorist Ulrich Beck and historian Gianni Silei have shown, technological intervention compounds the risk of disaster, leading to major accidents such as the infamous 1986 Chernobyl Nuclear Power Plant explosion or the less studied gas leak air pollution disaster that afflicted the oil city of Poza Rica de Hidalgo, located 270 kilometers northeast of Mexico City in the state of Veracruz, in 1950.⁷⁹

Writing the history of techno-scientific change in Latin America, requires, as economic historian Edward Beatty has articulated in *Technology and the Search for Progress in Modern Mexico*, scholars to remain cognizant of the asymmetrical power relations between Latin America and the North Atlantic that have historically defined the production, exchange, and consumption of knowledge.⁸⁰ Historians of Latin America have long eschewed the once-prominent notion that innovation and development resulted from unidirectional flows of expertise emanating from an industrialized, hegemonic core to the so-called underdeveloped periphery for the ultimate benefit of the core, a paradigm known as dependency theory.⁸¹ However, they also recognize dependency theory's "important legacy."⁸² Even works like that of scholar

⁷⁹ Ulrich Beck, *Risk Society: Towards a New Modernity*, trans. Mark Ritter (London, UK: Sage Publications, 1992); Gianni Silei, "Technological Hazards, Disasters and Accidents," in *The Basic Environmental History*, ed. Mauro Agnoletti and Simone Neri Seneri (Basel, Switzerland: Springer International, 2014); "Night Smog Fatal to 15 in a Mexican Oil Town," *New York Times*, November 25, 1950; the gas in question was hydrogen sulfide, which was suspended in the atmosphere due to a temperature inversion, see Louis C. McCabe, "Catastrophe in Mexico: Atmospheric Pollution," *Industrial and Engineering Chemistry* 43, no. 2 (February 1951): 79A–82A. For an ethnographic study of the lived experience of "risk, precariousness, and suffering" in Poza Rica and the memory of disaster, see Mónica Salas Landa, "Crude residues: The workings of failing oil infrastructure in Poza Rica, Veracruz, Mexico," *Environment and Planning A* 48, no. 4 (2016): 718–735.

⁸⁰ Edward Beatty, *Technology and the Search for Progress in Modern Mexico* (Berkeley: University of California Press, 2015), 1–3.

⁸¹ In dependency theory, knowledge, goods, tools, and techniques flow from the developed west to other, developing parts of the globe, like Latin America. However, historians of medicine have begun reexamining knowledge flows in Europe as well. Dóra Vargha has shown that medical knowledge and advancements in the fight against disease, polio in particular, were "surprisingly cooperative." On the case of polio in Hungary, Vargha writes that "[t]he effort against polio in Hungary crossed borders" and relied on "international cooperation and exchange" during the Cold War. See Dóra Vargha, *Polio Across the Iron Curtain: Hungary's Cold War with an Epidemic* (Cambridge, UK: Cambridge University Press, 2018), 11–12.

⁸² Beatty, *Technology and the Search for Progress*, 2; for an iteration of Eurocentric scientific diffusionism, see George Basalla, "The spread of Western Science. A three-stage model describes the introduction of modern science into any non-European nation," *Science* 156, no. 3775 (May 1967): 611–622; anthropologist James Morris Blaut offers a helpful overview of diffusionist models and provides nondiffusionist alternatives in "Diffusionism: A Uniformitarian Critique," *Annals of the Association of American Geographers* 77, no. 1 (March 1987): 30–47; María Portuondo sketches out the scholarly production on the history of science and technology in Latin America in "Constructing a Narrative: The History of Science and Technology in Latin America," *History Compass* 7, no. 2

of science and technology Natalia Verónica Soto Coloballes's 2015 dissertation, "El aire de cada día," a pioneering ethnographic account of Mexico City's air pollution through the lens of the tools, techniques, machines, technologies, and systems created to monitor, control, and ameliorate particulates, opens with an "obligatory reference" to the impact of the Great Smog of London in 1952. She explains that her study begins with the Great Smog episode,

...no solamente porque es el caso más conocido de la consecuencias catastróficas ocasionadas por la contaminación atmosférica, sino por su impacto a la hora de *definir qué clase de ciencia debería desarrollarse* para controlar este fenómeno, y en general porque a partir de este evento no hubo duda del peligro que se corría al respirar aire contaminado con cierto tipo de sustancias, orientando en un sentido muy preciso lo que debía considerarse como un riesgo, y *colonizado completamente el espectro conceptual de la contaminación atmosférica*.

[...not only because it is the case best-known for demonstrating the catastrophic consequences of atmospheric pollution, but for its impact at the time in *defining what kind of science should be developed* in order to control this phenomenon, and in general because, from this event, there was no doubt of the dangers of breathing air contaminated with certain types of substances, guiding in a very precise sense what should be considered a risk, and *completely colonizing the conceptual spectrum of atmospheric pollution*.]⁸³

Other Latin Americanists, including Colombian historian of education Margarita M. Peña Borrero, have further made the case that "technology is one of the modes through which the subordination of the

(2009): 500–522; see also Juan José Saldaña, ed., *Science in Latin America*, trans. Bernabé Madrigal (Austin: University of Texas Press, 2006); Thomas P. Glick, "History of Science in Latin America," *The Cambridge Encyclopedia of Latin America and the Caribbean*, 2nd ed., ed. Simon Collier, Thomas E. Skidmore, and Harold Blakemore (Cambridge, UK and New York: Cambridge University Press, 1992); Jorge Cañizares-Esguerra and Marcos Cueto, "Latin American Science: The Long View," *NACLA Report on the Americas* 35, no. 5 (2002): 18–22; Alexis de Griefff and Mauricio Nieto, "Lo que aún no sabemos sobre el intercambio tecnocientífico entre el Sur y Norte. Nortecentrismo, difusión científica y estudios sociales de la ciencia," in *Saberes locales: Ensayos sobre la ciencia en América Latina*, ed. Frida Gorbach and Carlos López Beltrán (Zamora, Michoacán: El Colegio de Michoacán, 2008); scholars have used patents to transcend the metanarrative of dependence, reference Edward Beatty, Yovanna Pineda, and Patricio Sáiz, "Technology in Latin America's Past and Present: New Evidence from the Patent Records," *Latin American Research Review* 52, no. 1 (July 2017): 138–149; Pablo Kreimer and Hebe Vessuri, "Latin American science, technology, and society: A historical and reflexive approach," *Tapuya: Latin American Science, Technology, and Society* 1, no. 1 (2018): 17–37; through studies of traveling experts and the networks to which they belonged, the 2020 edited collection *Itineraries of Expertise* importantly shows that "it was not always easy to disentangle 'local' or 'domestic' from 'global' or 'foreign' knowledge," see Andra B. Chastain and Timothy W. Lorek, eds., *Itineraries of Expertise: Science, Technology, and the Environment in Latin America's Long Cold War* (Pittsburgh: University of Pittsburgh Press, 2020), 8; others have reevaluated the US influence on Latin American science through the examination of English-language, Western-located historical writings about science, see Hadley Sinclair Cluxton, "Entangled Histories: An Analysis of the Anglophone Histories of Science in Latin America from Dependence to Decoloniality, 1950–Present," (Master's thesis, Appalachian State University, 2019).

⁸³ Natalia Verónica Soto Coloballes, "El aire de cada día: Internacionalización, culturas epistémicas y prácticas de medición de la contaminación atmosférica en la Ciudad de México," (PhD diss., Universidad Nacional Autónoma de México, 2015), 24; 22–23 [Emphasis added by author]; for one of the earliest historical accounts of the Great Smog of London, see William Wise, *Killer Smog: The World's Worst Air Pollution Disaster* (Skokie, IL: Rand McNally & Co., 1968).

periphery to the center is perpetuated.” “[H]igh technology,” she writes in her essay, “New Technologies and an Old Debate,” “comes sealed in ‘black boxes,’ and it depends on the provider for its innovation, maintenance, and reproduction. The periphery [Latin America] is thus at the receiving end of a process...”⁸⁴ Dependency, to be sure, operated in multileveled ways in Latin America, but, as recent works like the 2013 compilation *Technology and Culture in Twentieth-Century Mexico* have emphasized, “...it has become clear that new technologies tend to emerge out of a complex matrix of cultural values, consumer preference, and political and economic context, as well as concerns over technical efficiency.”⁸⁵ The history of technological and scientific achievement in Latin America is incontrovertibly marked by the stain of dependency—particularly in this study, as Mexico borrowed everything from monitoring equipment to legal frameworks from the US. But the local assimilation of such technologies was deeply negotiated.

This dissertation advances these historiographical leanings in its study of the technologies intended for ambient air pollution control and the amassing of knowledge on Mexico City’s air pollution more broadly. It supports scholars’ assertions that “technology extends beyond the material,” elaborating on such conclusions by recentering the focus on the “larger systems in which technological artifacts are a part.”⁸⁶ It contends that while Mexican pollution control strategies were influenced by twentieth-century US and European approaches to pollution abatement, they became something uniquely Mexican upon application. Especially in the US, anti-contamination laws grew out of an increasingly powerful environmental movement beginning in the 1960s, one that would not hit Mexico with the same force until the late 1980s. Modern environmentalism in the US championed the conservation of natural resources in order to curb the ecological degradation caused by industrial capitalism. Such values were subsequently thrust upon Mexico and other developing countries in global development forums like the

⁸⁴ Margarita M. Peña Borrero, “New Technologies and an Old Debate,” in *New Worlds, New Technologies, New Issues*, ed. Stephen H. Cutcliffe, Steven L. Goldman, Manuel Medina, and José Sanmartín (Bethlehem, PA: Lehigh University Press, 1992), 124.

⁸⁵ Araceli Tinajero and J. Brian Freeman, introduction to *Technology and Culture in Twentieth-Century Mexico*, ed. Araceli Tinajero and J. Brian Freeman (Tuscaloosa, AL: University of Alabama Press, 2013), 2–3.

⁸⁶ Tinajero and Freeman, introduction to *Technology and Culture*, 2.

1972 UN Conference on Human Development. But the on-the-ground implementation of environmental protection in Mexico was far more complex, as it occurred against the backdrop of continued government support for industrial economic growth. This framework highlights the negotiated and dynamic nature of knowledge production without overlooking the overarching political, economic, and social contexts undergirding that knowledge. For instance, throughout the 1970s, and particularly after the 1972 Stockholm Conference, Mexican engineers deployed mobile air monitoring stations on loan from the US Environmental Protection Agency (EPA) to collect data on Mexico City's air pollution while Mexican newspapers frequently ran advertisements for the Paser Magnum, an ill-fated "engine economizer" gadget manufactured by the US outdoor recreation retail company Recreational Equipment, Inc. (REI).⁸⁷ But Mexicans also devised successful information-gathering tactics, as was the case with the capital's 1975 all-female police brigade—pejoratively known as the "pollution maids" among some media outlets—which was tasked with tagging automobiles not in compliance with newly established vehicle emissions standards.⁸⁸ Through analysis of these and other examples, this dissertation explores the relationship between imported and homegrown technologies and the ways in which they functioned as parts of a composite system of knowledge generation.

The "Envirotech" vein is also germane to this history of air pollution in Mexico. Comprising scholars who investigate the confluence of technology and environment, the sub-field of envirotech history maintains that the environment is inseparable from technology and vice versa. In 2010, *The Illusory Boundary*, a thought-provoking envirotech anthology, boldly proposed that "historians of technology and the environment are, in effect, studying the same thing."⁸⁹ Some Latin American historians have since substantiated this claim. Mikael Wolfe's 2017 *Watering the Revolution*, for example, fuses histories of a

⁸⁷ United States Environmental Protection Agency, Division of Motor Vehicle Research and Development, National Air Pollution Control Administration, and the Department of Health, Education, and Welfare, *Exhaust Emissions from a Passenger Car Equipped With The "Paser Magnum Electronic Anti-Pollution Engine Economizer,"* by John C. Thomson (National Center for Environmental Publications, September 1970), 2.

⁸⁸ Arturo Gómez Castro, "Miles de Contaminantes Están Acabando con la Salud de los Ciudadanos," *El Nacional*, August 3, 1975, clipping in L6.04.01, Lucha Contra la Contaminación, Contaminación del Aire, 1970–1986, AE, BMLT; Stanley Meisler, "Nation too Poor to Cope, Mexico City: The Head that Outgrew its Body," *Los Angeles Times*, October 20, 1975.

⁸⁹ Martin Reuss and Stephen H. Cutcliffe, eds., *The Illusory Boundary: Environment and Technology in History* (Charlottesville: University of Virginia Press, 2010), 1.

natural resource, the waters of Mexico's cotton-producing Comarca Lagunera, with the technical systems created for its management, arguing that the environmental history of the region cannot be told without its mutually constitutive technological component.⁹⁰ For the Pacific World, Gregory Cushman has meticulously documented the convergence of industrial technologies and natural environments formed by deposits of seabird guano into a prominent global commodity: soil fertilizer.⁹¹ This dissertation further develops these lines of inquiry in its conceptualization of air as both a natural resource *and* a technological input. As part of the experimentation and empirical testing process, dirty air was fed into human-made contraptions, its properties disassociated to reveal the distinctive chemical contents of samples of polluted air. The resulting readings informed environmental policies and debates; were made legible to the public through the use of still other technologies such as the television or radio, appearing as part of the daily news and weather reports; and were used as barometers of progress in the fight for cleaner air. The history of air pollution is thus intimately linked to the history of envirotechnical systems.

Through assessment of environmental, urban, and disaster studies scholarship, as well as of the history of science and technology, this historiographical survey strives to show that there is not a paucity of work on air pollution. Quite the contrary: scholars across a wide range of disciplines have successfully taken on atmospheric questions. Climatologists Clarence Alonzo Mills and Peter Brimblecombe, atmospheric scientist Richard Turco, and Mexican chemist Humberto Bravo Álvarez early on studied contaminated atmospheres, hypothesizing the connection between air pollution and health and the spatial parameters of Mexico City's air pollution; while geographers René Verón and Thom Davies analyzed the urban political ecology of air pollution and brought to the fore the lived experience of toxic and polluted spaces as connected to environmental racism, respectively; and civil engineer John D. Bachmann outlined

⁹⁰ Mikael Wolfe, *Watering the Revolution: An Environmental and Technological History of Agrarian Reform in Mexico* (Durham: Duke University Press, 2017).

⁹¹ Gregory T. Cushman, *Guano and the Opening of the Pacific World* (Cambridge, UK: Cambridge University Press, 2013). For Costa Rica and Brazil, see anthropologist Andrea Ballesterio's *A Future History of Water* (Durham: Duke University Press, 2019). In Ballesterio's work, the focus is "less on watery scenes, fluid locations, and aquatic environments," but rather on "water elsewhere, in places where we might not usually explore its material politics," such as in "devices" like formulas, indexes, lists, and pacts used for and in water management, see pg. 15.

the regulatory history of twentieth-century air quality management in the US.⁹² Historians such as Peter Thorsheim, Stephen Mosley, Frank Uekötter, Carlos Flick, and Joel Tarr have also participated in these discussions by contributing political and legislative histories of air pollution as connected to urbanization and industrialization in Britain and the US, spearheading urban air pollution studies in the process, while Angela Gugliotta's work on the cultural history of air pollution, "Hell With the Lid Taken Off," explores the meanings associated with smoke in Pittsburgh, Pennsylvania.⁹³ Yet as a subject of increasing importance to the field of environmental history in general, air pollution remains staunchly European and Anglo-American in focus—indeed, a recent call for papers put out by the Rachel Carson Center has stated that "[t]oday, the history of pollution is one of the most elaborated topics in European environmental history."⁹⁴

While there is a considerable body of work on air pollution in Latin America, and notably on Mexico, much of the research for such geographies has been conducted by non-historians.⁹⁵ Political

⁹² Clarence Alonzo Mills, *Air Pollution and Community Health* (Boston: Christopher Publishing House, 1954); Peter Brimblecombe and Christian Pfister, eds., *The Silent Countdown: Essays in European Environmental History* (Berlin: Springer-Verlag, 1990); Richard P. Turco, *Earth under Siege: From Air Pollution to Global Change* (Oxford: Oxford University Press, 1997); Humberto Bravo Álvarez, "Variation of Different Pollutants in the Atmosphere of Mexico City," *Journal of the Air Pollution Control Association* 10, no. 6 (1960): 447–449; René Verón, "Remaking Urban Environments: The Political Ecology of Air Pollution in Delhi," *Environment and Planning A: Economy and Space* 38, no. 11 (November 2006): 2093–2109; Thom Davies, "Toxic Space and Time: Slow Violence, Necropolitics, and Petrochemical Pollution," *Annals of the American Association of Geographers* 108, no. 6 (2018): 1537–1553; "Slow violence and toxic geographies: 'Out of sight' to whom?," *Environment and Planning C: Politics and Space* 0, no. 0 (April 2019): 1–19; Thom Davies and Alice Mah, eds., *Toxic Truths: Environmental Justice and Citizen Science in a Post-Truth Age* (Manchester, UK: Manchester University Press, 2020); Bachmann, "Will the Circle Be Unbroken."

⁹³ Peter Thorsheim, *Inventing Pollution: Coal, Smoke, and Culture in Britain since 1800* (Athens: Ohio University Press, 2006); Stephen Mosley, "Environmental History of Air Pollution and Protection," in *Basic Environmental History*, ed. Mauro Agnoletti and Simone Neri Seneri (Basel, Switzerland: Springer International, 2014), 143–169; Frank Uekötter, *The Age of Smoke*, 2009; Carlos Flick, "The Movement for Smoke Abatement in 19th-Century Britain," *Technology and Culture* 21, no. 1 (January 1980): 29–50; Joel A. Tarr, *The Search for the Ultimate Sink: Urban Pollution in Historical Perspective* (Akron, OH: University of Akron Press, 1996); Raechel Lutz, "Crude Conservation: Nature, Pollution, and Technology at Standard Oil's New Jersey Refineries, 1870–2000," (PhD diss., Rutgers University, 2018); Angela Gugliotta, "Hell with the Lid Taken Off: A Cultural History of Air Pollution—Pittsburgh," (PhD diss., University of Notre Dame, 2004).

⁹⁴ To be held in August 2020, the "Flows, Histories, and Politics of Pollution in Europe" workshop proposes that "[t]he time has now come to view environmental pollution from a new angle," one in which "[b]oth transnational and comparative presentations...are welcomed," see the call put out by the Rachel Carson Center for Environment and Society, Andrei Vinogradov, "Call for Papers: Flows, Histories, and Politics of Pollution in Europe (17–20 Century)," post to Calendar of Events, Ludwig-Maximilians-Universität München, Rachel Carson Center for Environment and Society, April 23, 2020, accessed April 23, 2020, https://www.carsoncenter.uni-muenchen.de/download/events/cfps/cfp_workshop2020_pollution.pdf.

⁹⁵ Historians of Latin America have, however, studied energy regimes. While not works of pollution history, they do have important implications for the study of air pollution. Natalia Milanesio, for example, investigates the cultural

economist Mark Erik Williams, political scientist Stephen Mumme, science and technology scholar Natalia Verónica Soto Coloballes, psychologist Karina Manderos Mugica, engineers Kenneth Wark and Cecil Warner, environmental journalists like Joel Simon, and legal scholars such as Jose Juan Gonzalez Márquez have done the arduous but pressing work of deconstructing the nature of Mexico's atmospheric pollution and the many reform initiatives, clean-air laws, institutions, and technological remedies associated with it.⁹⁶ Taking this corpus of scholarship into mind, we are still left with the question of air's "fit" in Latin American environmental history. What this dissertation proposes, therefore, is not only to deliver a history of air pollution creation and control situated in a Latin American megacity that is infamously and internationally known since the last third of the twentieth century for its bad air. This in itself constitutes merely an initial step forward towards filling a lacuna in the geographical coverage of extant historical investigations of air pollution in the field of environmental history. Where it diverges from past studies is in its argument for the critical reorientation of *air* as a force of change in environmental history and of Mexico City as a case study for the observation of that change. Atmospheric transformation in the form of air pollution was so invasive that it altered bodily functions by weakening immunities and causing mysterious urban maladies. Air was also an agent powerful enough

and environmental history of natural gas in Peronist Argentina in "The Liberating Flame: Natural Gas Production in Peronist Argentina," *Environmental History* 18, no. 3 (July 2013): 499–522; for more on energy history in Latin America, reference Germán Vergara, "Fueling Change: The Valley of Mexico and the Quest for Energy, 1850–1930," (PhD diss., University of California, Berkeley, 2015); "How Coal Kept My Valley Green: Forest Conservation, State Intervention, and the Transition to Fossil Fuels in Mexico," *Environmental History* 23, no. 1 (January 2018): 82–105; Matthew Vitz, "'To Save the Forests': Power, Narrative, and Environment in Mexico City's Cooking Fuel Transition," *Mexican Studies/Estudios Mexicanos* 31, no. 1 (Winter 2015): 125–155.

⁹⁶ Stephen P. Mumme, C. Richard Bath, and Valerie J. Assetto, "Political Development and Environmental Policy in Mexico," *Latin American Research Review* 23, no. 1 (1988): 7–34; Stephen Mumme, "Clearing the Air: Environmental Reform in Mexico," *Environment: Science and Policy for Sustainable Development* 39, no. 3 (Spring 2006): 915–933; Natalia Verónica Soto Coloballes, "El control de la contaminación atmosférica en México (1970–1980): Tensiones y coincidencias entre el sector salud y los industriales," *Dynamis* 37, no. 1 (2017): 187–209 and "Aires de México: Contaminación y partículas en la segunda mitad del siglo XX," in *Piedra, papel, y tijera: Instrumentos en las ciencias en México*, ed. Laura Chazáro, Míruna Achim, and Nuria Valverde (Ciudad de México: Universidad Autónoma Metropolitana, Unidad Cuajimalpa, 2018), 387–414; Karina Landeros Mugica, "Dimensiones psicosociales de la contaminación del aire de la Zona Metropolitana de la Ciudad de México," (PhD diss., Universidad Nacional Autónoma de México, 2013); Mark Eric Williams, *Market Reforms in Mexico: Coalitions, Institutions, and the Politics of Policy Change* (Lanham, MD: Rowman & Littlefield, 2001); Kenneth Wark and Cecil F. Warner, *Contaminación del aire: Origen y control* [1960] (México: Limusa, 1990); Joel Simon, *Endangered Mexico: An Environment on the Edge* (San Francisco: Sierra Club Books, 1997); Jose Juan Gonzalez Márquez, *Environmental Law in Mexico*, 2nd ed. (The Netherlands: Kluwer Law International, 2017); Cecilia Montero López, "Pronóstico de la calidad del aire en el área metropolitana de la ciudad de México a través del análisis de las series de tiempo de los componentes del IMECA," (PhD diss., Universidad Iberoamericana, 2011).

to uproot a deep-seated sense of place, modifying perceptions of the city from “*la región más transparente del aire*” (the region of the most transparent air) to unwelcoming esmogópolis.⁹⁷ Yet ambient pollution was equally as elusory, evading detection in more ways than one until its presence was tantamount to environmental disaster by the last decades of the twentieth century. An environmental history of human engagements with air in Mexico, pollution and all, is long overdue and has much to contribute to important scholarly discussions of modernity, environmental consciousness, and resilience.

Writing about Air: Themes and Theories

At the crux of this dissertation is an account of atmospheric change. In this dissertation, “atmospheric” holds multiple meanings: it is primarily used as a synonym for “aerial” or “non-terrestrial,” as but also, and more comprehensively, it encompasses that which exists or takes place in the air, from weather events such as storms to the intermixing of various pollutants in the sky.⁹⁸ This study uses air as window through which to understand how the pursuit of modernity resulted not only in urban landscape transformations but in changes in the way people perceived of the city as well. It asserts that paying attention to the air uncovers crucial historical debates, taking place both in air-conditioned government offices as well as on the ground in the open air, regarding the sustainability of Mexico City’s twentieth-century growth. In doing so, it acknowledges that writing a history of air through the vantage point of a Latin American megalopolis, Mexico City, where urban-industrial development dominated most of the

⁹⁷ The Prussian naturalist, Baron Alexander von Humboldt, upon arriving to the Valley of Mexico in the early nineteenth century, remarked of its air quality: “...the air through which the eye receives the rays is more rare and transparent...” see *Political Essay on the Kingdom of New Spain* [1811], vol. 1, 2nd ed., trans. John Black (London: Longman, Hurst, Rees, Orme, and Brown, 1814), 153; the prolific Mexican essayist Alfonso Reyes notably resurrected von Humboldt’s inference nearly a century later, opening his novel, *Visión de Anáhuac*, with the phrase, “Traveler, you have arrived to the most transparent region of the air,” see *Visión de Anáhuac (1519)* [1917], 4th ed. (México, DF: El Colegio de México, 1953), 7; still later, internationally renowned Mexican novelist Carlos Fuentes’s first novel, *La región más transparente*, reworked this phrase into a critical commentary of mid-twentieth-century political, economic, social, and environmental conditions, see *La región más transparente* (México, DF: Alfaguara, 1958); for sweeping coverage of von Humboldt’s scholarship, see Rex Clark and Oliver Lubrich, eds., *Cosmos and Colonialism: Alexander von Humboldt in Cultural Criticism* (New York: Berghahn Books, 2012).

⁹⁸ Other aerial happenings not explored by this dissertation include aircraft battles as part of warfare, and navigation or flight. Less often, particularly in its analysis of photography, drawings, and paintings in Chapter One, this dissertation employs “aerial gaze” or “atmospheric perspective” to comment on artistic and narrative technique in cultural representations of the sky over time.

twentieth century and took on a larger importance as the means to achieve national self-sufficiency and material gain, is inherently political. It reveals that although official political rhetoric faltered in recognizing that urban growth was not a limitless bounty during the course of the twentieth century, Mexico City's polluted atmosphere demonstrated otherwise. This dissertation examines the air through the processes that led to its contamination—industrialization, urbanization, an automobile revolution powered by domestic and foreign marketing and mass consumption—as well as the subsequent ways in which people, faced with an emerging public health crisis, cultivated consciousness and attempted to navigate its purification.

Although air pollution is this dissertation's focal point, this study is not solely a political history of policy responses to the problem of urban atmospheric contamination, nor does it fixate narrowly on Mexico City's environmental regulatory mechanisms and agencies. It breaks away from these more traditional approaches by exploring themes such as embodiment, envelopment, and negotiation in order to get closer to how historical actors made sense of air pollution over time. Official politics are of undeniable importance to any study of the environmental governance of a common good—indeed, they are, to use political ecologist Stefania Barca's words, “structurally embedded in the story.”⁹⁹ Expanding on historian Lane Simonian's seminal *Defending the Land of the Jaguar*, a long view of Mexican conservation policies and one of the first comprehensive English-language forays into the country's clean-air laws, this dissertation reviews a range of federal and municipal government initiatives, formal laws targeting the air, and the politicians at the helm of navigating atmospheric reform on the political stage.¹⁰⁰ It is therefore not devoid of analysis of the political. However, it also heeds the warnings of political scientist Matthew

⁹⁹ Stefania Barca, “On ‘the Political’ in Environmental History,” *Undisciplined Environments*, May 4, 2017, accessed June 27, 2019, <https://undisciplinedenvironments.org/2017/05/04/on-the-political-in-environmental-history/>; Barca situates the history of waterpower in central Italy within the politics of industrial capitalism in *Enclosing Water: Nature and Political Economy in the Mediterranean Valley, 1796–1916* (Cambridge, UK: The White Horse Press, 2010); for an interdisciplinary approach to the study of air pollution, and one which combines the political and cultural realms, see E. Melanie DuPuis, ed., *Smoke and Mirrors: The Politics and Culture of Air Pollution* (New York: New York University Press, 2004).

¹⁰⁰ Lane Simonian, *Defending the Land of the Jaguar: A History of Conservation in Mexico* (Austin: University of Texas Press, 1995); for a contemporary account of legal environmental reform in 1970s Mexico, see Julian Juergensmeyer and Earle Blizzard, “Legal Aspects of Environmental Control in Mexico: An Analysis of Mexico's New Environmental Law,” *Natural Resources Journal* 12, no. 4 (1972): 580–599.

Crenson, whose timely 1971 work, *The Un-Politics of Air Pollution*, appropriately pointed out that politics can detrimentally brand certain emerging concerns as “non-issues” and that air pollution, in particular, “has been a victim of political neglect.”¹⁰¹ As a result, this dissertation seeks to access the idiosyncratic lived experiences that politics could not, and often did not want, to see, but which nonetheless dispense critical insight into conceptualizations of urban environmental change.

The present work is chiefly interested in interrogating the diverse ways of thinking about the air and of its pollution. It aims to pinpoint and connect together cycles of atmospheric knowledge production, focusing on the ways in which air was at the center of perceptions of a healthy and, later, unhealthy environment over time. As such, the expertise of scientists, engineers, lawyers, and officials tells only one (albeit significant) part of the story. These voices, as Ann Johnson suggests, continue to command authority because of “the claim that their knowledge is objective.”¹⁰² Regardless of the purported credibility of specialists, who publicly performed their jurisdiction over air issues by using their skills to draft policies or in innovation, the know-how that was gleaned (as opposed to studied) by individuals without formal training informs another, equally substantive portion of this history. Journalists, travelers, artists, marketers, and those who lived in the city and breathed its air are the necessary, yet heretofore understudied, counterparts. In drawing out these voices and placing them in conversation with those entrusted with the task of remedying pollution, this dissertation presents a more comprehensive picture of historical values and of the lived experience of the environment during a period of immense structural transformation. Therefore, while it casts light on the human attempts to control atmospheric deterioration through legislation and techno-scientific invention, it gives proportionate weight to the ways in which this persistent, risky, all-encompassing phenomenon functioned to *exert control over* the lives of the capital’s inhabitants. Mexico City’s unforgiving air pollution

¹⁰¹ Matthew A. Crenson, *The Un-Politics of Air Pollution: A Study of Non-Decisionmaking in the Cities* (Baltimore: Johns Hopkins University Press, 1971), vii; epidemiologist Devra Davis shows how politics and industry in the US have contributed to this silencing effect, see *When Smoke Ran Like Water: Tales of Environmental Deception and the Battle Against Pollution* (New York: Basic Books, 2002); see also Gerald Markowitz and David Rosner, *Deceit and Denial: The Deadly Politics of Industrial Pollution* (Oakland: University of California Press, 2013).

¹⁰² Ann Johnson, “Revisiting Technology as Knowledge,” *Perspectives on Science* 13, no. 4 (Winter 2005): 564.

fomented not only a widespread popular concern, but a sort of atmospheric cognition culled from quotidian, bodily exposure to atmospheric contamination. Compared to the formal knowledges codified in government or scientific reports, this was a rather tacit familiarity. To that end, one of the major goals of this project is to elevate the embodied ways of knowing the atmosphere and the affective experiences with the air.

In a 2005 interview with Neal Conan of NPR's *Talk of the Nation*, author Scott Huler spoke about his motivations for writing *Defining the Wind*, a popular history of wind and of the creator of the Beaufort wind scale, Sir Francis Beaufort. "The body is the best measuring device," he muses in his explanation of Beaufort's descriptive, corporeal approach to gauging the wind's intensity, "the whole world is trying to express itself to you and we are just ignoring it."¹⁰³ Bodily knowledge, fostered by the firsthand, daily, and often unconscious human interactions with the environment, has recently become a subject of interest among some environmental scholars. Inspired by feminist problematizations of the body, Joy Parr's scholarship, *Sensing Changes* and "Our Bodies and Our Histories of Technology and the Environment," is a leading example of the shift towards "embodied historical practice." Parr argues that "[o]ur bodies are the archive of our histories and interaction with technology and the environment...our bodily form and our senses produce 'bodily knowledge' that mediates our connections with the external world and helps determine both the tools we use and the nature we experience."¹⁰⁴ People gained what cultural geographer Derek P. McCormack terms "sensory capacities" through their daily activities—walking around the city, enveloped by the atmosphere, taking in and processing the scenery, smells, and sounds around them—and through the health repercussions of those everyday actions, whether it was conjunctivitis, a sore throat, a runny nose, or a more serious ailment resulting from chronic exposure to

¹⁰³ Scott Huler, interview with Neal Conan, *National Public Radio—Talk of the Nation*, podcast audio, August 10, 2005, <https://www.npr.org/templates/story/story.php?storyId=4794209>; Scott Huler, *Defining the Wind: The Beaufort Scale, and How a 19th-Century Admiral Turned Science into Poetry* (New York: Three Rivers Press, 2004).

¹⁰⁴ Joy Parr, "Our Bodies and Our Histories of Technology and the Environment," in *The Illusory Boundary: Environment and Technology in History*, ed. Martin Reuss and Stephen H. Cutcliffe (Charlottesville: University of Virginia Press, 2010), 26; *Sensing Changes: Technologies, Environments, and the Everyday, 1953–2003* (Vancouver: University of British Columbia Press, 2009); see also Linda Nash, *Inescapable Ecologies: A History of Environment, Disease, and Knowledge* (Berkeley: University of California Press, 2006).

daily risks and the accumulation of these microinjuries.¹⁰⁵ Bodily knowledge, this dissertation demonstrates, was essential to popular understandings of Mexico City's air pollution.

A methodology sensitive to the ways in which the body registers environmental changes over time implicitly invites reflection on the reciprocal relationship between nature and culture, a tenet prevalent in the environmental humanities. Anthropologist Casey Walsh in *Virtuous Waters*, an investigation of mineral hot springs and bathing cultures throughout Mexico, underscores precisely this point when he writes that "...waters were agential, and that this agency could be described in terms of the effects waters had on other bodies."¹⁰⁶ Air, too, effects bodily change: a supply of fresh air can purify and restore bodies, but exposure to air laden with contaminants can also make bodies sick. Recent work in ecocriticism, such as "From Nostalgic Longing to Solastalgic Distress" by American Studies scholar Alexa Weik von Mossner, has utilized affect theory to not only demonstrate the idea that "[o]ur environment plays a central role not only in how we feel but also in our cognitive understanding of how we feel about the environment."¹⁰⁷ In other words, natural surroundings produce observable effects on the body, but they also affect our thoughts and feelings about our surroundings, as well as our behaviors. This dissertation applies these insights to the historical study of the air, finding these scholarly concerns pivotal for shifting some of the analytical focus away from the process of pollution-making and control and towards a phenomenology of atmospheric consciousness based on human experience.

Following these leads, this dissertation suggests that sensory knowledge shaped historical understandings of Mexico City's metamorphosing urban environment, and that fleshly entanglements with the air, in particular, are instrumental in revealing the ways in which Mexicans knew or did not know the city's air pollution. Among the senses, sight is perhaps the most conventional way that humans engage with their surroundings. "Visibility," contends Nicole Pauly Hyslop, an investigator at University

¹⁰⁵ Derek P. McCormack, *Atmospheric Things: On the Allure of Elemental Envelopment* (Durham: Duke University Press, 2018), 35.

¹⁰⁶ Casey Walsh, *Virtuous Waters: Mineral Springs, Bathing, and Infrastructure in Mexico* (Oakland: University of California Press, 2018), 59.

¹⁰⁷ See Alexa Weik von Mossner, "From Nostalgic Longing to Solastalgic Distress," in *Affective Ecocriticism: Ecocriticism, Emotion, Embodiment*, ed. Jennifer Ladino and Kyle Bladow (Omaha: University of Nebraska Press, 2018), 52. [Emphasis added in brackets by author]

of California, Davis's Air Quality Research Center, "is an environmental quality that is valued for aesthetic reasons that are difficult to express [but] human psychology and physiology are sensitive to visual input...People are sensitive to their surroundings on both a conscious and subconscious level."¹⁰⁸ Second-nature knowledge, such as that ascertained from the senses, was as much a product of negotiation as its formalized, intellectual counterpart, and is mediated by society (including political and economic interests), individual subjectivity, and the agential environment itself. Parr explains that, in response to overwhelming environmental degradation, for instance, humans develop "sensory calluses, in effect physical habits of inattention...[or] higher bodily tolerances for the noise, stench, dirt, and shadow of congested neighborhoods." This sensorial numbing is present in the formation of what David E. Nye calls the "anti-landscape," the process wherein, through "desertification, erosion, deforestation, pollution, or poisoning," environments become perceived as unlivable."¹⁰⁹ Air pollution crisis narratives produced during the last three decades of the twentieth century provide evidence of this as they demonstrate the acute realization that Mexico City was becoming an uninhabitable space, its harmful effects manifested throughout the body in the form of "illness and death," as an aforementioned journalist once proclaimed.¹¹⁰ Merging the embodied experience with scientific, technological, and political discourse, this dissertation contributes more comprehensive coverage of the human perception of Mexico City's environment over time.

Locating Air in the Historical Record and Chapter Organization

Integrating an array of disparate documentary records, this dissertation analyzes various ways of knowing Mexico City's atmosphere over a temporally broad scale. In this study, knowledge generated vis-

¹⁰⁸ Nicole Pauly Hyslop, "Impaired visibility: the air pollution people see," *Atmospheric Environment* 43, no. 1 (2009): 182, 193.

¹⁰⁹ Parr, "Our Bodies and Our Histories," 34; David E. Nye, "The Anti-Landscape," in *The Anti-Landscape*, ed. David E. Nye and Sarah Elkind (Amsterdam and New York: Rodopi, Studies in Environmental Humanities, 2014), 14; Chris A. B. Zajchowski and Jeff Rose show that a dulling of the senses owing to environmental deterioration is accompanied by a hyperawareness of the diseased body or the "dys-appearing" of the body, bringing the body to a "heightened awareness when pain, illness, or intense sensation remind us of our corporeal presence and disrupt body-world relationships," see "Sensitive Leisure: Writing the Lived Experience of Air Pollution," *Leisure Sciences* 49, no. 4 (April 2018): 3.

¹¹⁰ Lupian Mejía, "Nos encaminamos hacia la autodestrucción."

à-vis formal, intellectual, and official ventures—scientific experiments and conference participation in international air pollution forums, for example—complements subjective and embodied experiences, which this project parses out by paying attention to sensory descriptions and affective discourses in written narratives and oral accounts. Throughout four chapters and an epilogue, this dissertation reconstructs an epistemology of air in Mexico City. Though a large part of this project is set in the twentieth century, a foundational opening chapter investigates the importance of air in the colonial and nineteenth-century landscape. In this more distant past, Mexico City’s atmosphere was widely perceived as alimentative and aesthetically pleasing, a striking contrast to late-twentieth-century diagnoses of the city’s air, which emphasized its toxicity. Casting a chronologically wide net, as this dissertation does, demonstrates that atmospheric preoccupations bookend Mexico City’s environmental history.

This project makes use of an assortment of archival sources consulted during transnational research conducted between Mexico City and the US. In Mexico City, multiple repositories operating at varying levels of government supplied essential policy, techno-scientific, and journalistic evidence, as well as some medical commentary, information that comprises Chapters Three and Four, while research libraries facilitated access to the published travelogues featured prominently in Chapter One. In Mexico, finding air in the historical record proved challenging due to the fragmentary nature of the archive, particularly the Archivo General de la Nación, which suffers from a lack of holdings dedicated specifically to atmospheric themes and concerns. Primary source documents addressing environmental issues are diffused throughout twentieth-century presidential holdings, or *ramos presidenciales*, framed as political and bureaucratic issues within late-twentieth-century presidential terms, and coverage is inconsistent. Documents giving detail into the city’s air problems are rarer still, as water and land are more exhaustively chronicled due to their intimate connection to the country’s agrarian legacy.¹¹¹ In the

¹¹¹ Notwithstanding these particularities, which are specific to Mexico City and thus to this project, other historians of atmospheric phenomena elsewhere have found the lack of direct archival accounts similarly troublesome. As a result, historians have developed “alternative means of analysis, by utilizing data that did not necessarily have an obvious link to the issue.” They frequently rely on “proxy data,” or the use of “surrogate sources of information,” such as the records of sanitary bureaus, industrial zoning commissions, and other urban governing bodies, to piece together these “complex and intangible” histories. For an exploration of such a methodology as it relates to the nineteenth-century history of air pollution in England, see Catherine Bowler and Peter Brimblecombe, “Archives

US, in cities like Durham, North Carolina; and Dearborn, Michigan; I reviewed the records of advertising giant J. Walter Thompson and the papers of the international offices of Ford Automotive Company, respectively. Both were strong foreign presences in Mexico, and claimed a particular interest in its capital during the twentieth century. The sources left behind by these companies, overlooked by past historians, shed light onto Mexico City's mid-twentieth-century automobile revolution, practices of automobile consumption, and the mass-marketing tactics upon which the revolution relied, even amidst a rising concern about the linkage between car emissions and ambient air pollution beginning in the last third of the twentieth century. Chapter Two examines these processes in detail. Finally, conversations with current and former residents of Mexico City enriched my analysis of embodiment and affective engagement with the environment, an important story told by the Epilogue.

The chapters in this dissertation present stories about the ways in which air created a sense of place in Mexico's capital over centuries. Working off of the premise that air played a pivotal role in determining the meaning, experience, and "feel" of the city, this dissertation connects processes of spatial and landscape transformation with analysis that aims to understand how such processes, as seen through an atmospheric lens, shaped perceptions of the city.¹¹² The first chapter sets the foundational geographic and historical context for understanding the early importance of air in the formation of a historically-specific and popular image of Mexico City as the most transparent region in the world. As the beginning

and air pollution history," *Journal of the Society of Archivists* 13, no. 2 (September 1992): 136–142. See also Melanie A. Kiechle's discussion of methodology for sensory history in "Preserving the Unpleasant: Sources, Methods, and Conjectures for Odors at Historic Sites," *Future Anterior* 13, no. 2 (Winter 2016): 22–32. She writes: "...those searching for past smells must pay close attention to vocabulary, looking for words that have fallen out of use and considering how definitions have changed over time...In addition to recognizing the meaning of individual words, researchers must pay attention to common and recurrent phrases...and situate them in their cultural context." Though the cultural and historical context of Kiechle's article is nineteenth-century urban America, paying attention to the changing uses of and meanings attached to these impalpable environmental substances is central in the environmental historian's toolkit. While unifying, source scarcity is not a universal experience. Some scholars, such as human geographer Mark Whitehead, have encountered a veritable air quality archive, a "digital record of the air" in the British government's repositories, consisting of a "plethora of atmospheric measurements [which were] the product of thousands of sampling devices and stations that have been established throughout Britain since the early decades of the twentieth century." For an elaboration, see Mark Whitehead, *State, Science and the Skies: Governmentalities of the British Atmosphere* (Malden, MA: Wiley-Blackwell, 2009), xii–xiii.

¹¹² Nicolas Kenny uses the "feel of the city" to refer to "people's physical and cerebral interactions with urban space." In Kenny's work, a case study of Brussels and Montreal, such engagements gave meaning to all-encompassing landscape transformations incited by industrialization and urbanization. See Nicolas Kenny, *The Feel of the City: Experiences of Urban Transformation* (Toronto, University of Toronto Press, 2014), 5.

of this introductory chapter makes evident, this nickname maintained its relevance into the twentieth century and travel agencies used it to fuel tourism, even as air pollution uprooted this informal title. Chapter One, then, harkens back to the nineteenth century, with connections extending further into the colonial period, to locate the origin of this long-obsolete moniker. In this it reengages the chronicles of those who were known as the conquerors of the grand city-state México-Tenochtitlán as well a swath of works by both lionized and lesser-known nineteenth-century travelers to Mexico City whose poetic musings also demonstrate a deep appreciation for the aesthetic vistas offered by Mexico's capital. An underlying thread in their accounts is the dependence on full-bodied ways of knowing the environment, including the valley's atmosphere. This chapter follows the aerial gaze of explorers and nineteenth-century visitors as they marveled descriptively through the narrative and artistic form over the brilliance of the city's sky. While the city no longer bears the name of most translucent, these sensory depictions, as later chapters accentuate, live on in various ways in the twentieth and twenty-first centuries. Politicians and marketers, in particular, have nostalgically appropriated atmospheric references of a seemingly healthier era to enforce favorable portraits of the city at the expense of disavowing the severity of its air pollution.

Chapter Two marks the entry point into the twentieth century, the temporal focus of the remainder of the dissertation. This chapter centers the first half of the twentieth century, recognizing it as a socio-spatial transitional period in the city. It adopts as its subject the grand processes of industrialization and the automobile revolution, considering as well their roles in the city's demographic explosion. It ruminates on the ways in which industry, automobiles, and by extension the businessmen, automakers, and advertisers who architected this period of material and economic transformation, were implicated as contributors to the city's slowly-forming air pollution crisis as they quite literally instigated the making of a new landscape. The second chapter thus provides a birds-eye-view of the industrial overdevelopment of the city, placing a spotlight on one company in particular: Ford de México, S.A., a subsidiary of the American Ford Motor Company, based in Dearborn, Michigan. Established in 1925, Ford was an early foreign presence in Mexico and would become an industrial giant that furnished

masses of Mexican consumers with automobiles through a sophisticated advertising campaign that leveraged from the existing desire for modernity. This chapter uses Ford de México as an in-depth case study of processes of material landscape transformation, and reveals the ways in which industry and the automobile came to dominate Mexico's urban landscape, blackening the once-lustrous vistas out of view.

Having described these powerful forces of structural urban change, the third chapter considers how such processes altered the city's reputation abroad and how, as a result, a more nuanced sense of place was forged by entirely new actors. Whereas Chapter One looked at the writings of nineteenth-century travelers, zooming in on their descriptions of landscape, climate, and meteorological phenomena, Chapter Three uses the records of Mexican chemists, engineers, and meteorologists, as well as tourism boosters, who promoted recreational travel to the capital, to peer into the urbanized landscape once again. By the mid-twentieth century, Mexico City no longer looked like the fledgling metropolis of the 1800s, yet air still served to give meaning to the urbanized city. In this chapter, the ephemeral records of the tourism industry—travel brochures, newspaper print journalism, and other promotional material—intermixes with the studies of trained experts who aimed to give greater insight into the technical and scientific aspects of air pollution formation. Corraling these sources into one chapter, while also recognizing that they were produced under differing circumstances and for the fulfillment of different objectives, allows for an exploration of the ways in which atmospheric discourses were inculcated into the perception of the mid-twentieth-century urban landscape. As this chapter argues, ad men, travel correspondents, and scientists, at first glance an unlikely set of characters to place under one umbrella, were early and outspoken mouthpieces of Mexico City's atmospheric deterioration during the 1960s, prior to the incursion of the government in the management of air pollution.

The fourth chapter covers the politics of air pollution in Mexico City. It is both a legislative history of air pollution during the last third of the twentieth century, and a study of bodily politics in the making of yet another iteration of Mexico City's landscape—a highly polluted, seemingly unlivable anti-landscape, in the words of scholar David Nye. This chapter commences in the last third of the twentieth century, specifically the early 1970s, with the unprecedented passing of Mexico's Federal Law for the

Prevention and Control of Environmental Contamination, and ends in the 1990s, the decade in which Mexico City gained a new alias upon the UN naming the city the most polluted in the world. It takes us to political terrain, a more familiar realm for scholarly study of pollution, relying on two central questions to guide this chapter: How did air come under environmental government; and which knowledges did officials depend on to codify air pollution control once the city's air entered into the realm of official policy? The chapter delves into the technopolitical history of air, digging up technocratic interpretations of air pollution and the scientific expertise upon which these conclusions hinged to show that these, too, encompassed bodily forms of knowing. Yet this knowledge also took shape against the context of a rising popular activism spearheaded by artists, poets, and some scientists, whose creative outputs represent artifactual embodiments of embodied ways of knowing the anti-landscape of Mexico City. Air, in their ecologically-charged, sensorial cultural productions, here including various popular culture works such as comics, art, poetry, cartoons, and novels, communicated the perception of Mexico City's broader deterioration, implicating that the capital had increasingly become unlivable. An analysis of these air-centric sources reveals that air was intimately enmeshed with the idea of late-twentieth-century environmental disaster, a disaster more silent, menacing, and unknowable than rapid-onset catastrophes, such as earthquakes, that are known to afflict Mexico City. Despite political officials finally getting involved in atmospheric governance by the last third of the twentieth century, artists and activists effectively overshadowed atmospheric dialogues, rendering visible the threat of air pollution both in mundane and extraordinary narratives and imagery.

This chapter also analyzes three national clean-air laws and multiple public-facing environmental improvement initiatives such as *Hoy No Circula* (Day without a Car) or Environmental Improvement Week during the three consecutive *sexenios* (six-year presidential terms) in which they appeared. As the first Latin American country to enact federal anti-pollution laws during the collapse of the economic miracle and an eventual turn towards privatization, enforcement of new standards throughout these nearly twenty years was haphazard and fraught with hurdles. From the beginning of air pollution legislation, Mexico lacked a cohesive air pollution measurement system to track the concentration of

particles suspended in the air. Second, from the government's point of view, a public apathy about air pollution made matters worse. Yet laws also functioned to create new environmental subjects that contributed in notable ways to atmospheric governance. These tensions play out in the final of chapter, which examines environmental legislation in concert with the artistic and literary productions of members of environmental subjects, from everyday residents to activists. In this chapter, the discourses surrounding air pollution synthesized questions of politics, citizenship, responsibility, and culpability. And, although rhetoric often exceeded direct action and claims of deceit were frequent, air pollution had become a symbol through which to air out broader concerns for Mexico City's future.

Air pollution is an ongoing, pervasive component of our modern existence. As societies struggle to reign in the damaging effects of climate change, phenomena like air pollution and nature-induced disasters are painted as seemingly permanent facets of the future, and public policy conversation routinely focuses on improvement rather than eradication. Despite examples of incremental progress, as this case study of Mexico City shows, there is no end, no resolution, and no definitive tone to this story. Because of this, this dissertation employs an epilogue in lieu of a conclusion. The Epilogue brings into consideration recent dramatic air pollution events, including *la semana gris* (the grey week) of May 2019, a forest-fire-induced air pollution emergency, to zoom in most intensely and intently on the themes of embodiment, envelopment, and sensorial negotiation of the environment. Taking a cue from social science literature and the embryonic field of sensory urban history, this dissertation recognizes the important roles that the critical personal narrative plays in the study of the environment. Therefore, part of this chapter takes the form of an autoethnography, an introspective exploration of my subjective experiences of the city and of its air pollution, knowledge which I amassed during my time spent traveling and conducting archival research there in 2017 and 2018, knowledge that was simultaneously shaped by context derived from the historical sources with which this dissertation engages. But, as sociologists J. Timmons Roberts and Nikki Demetria Thanos have argued in *Trouble in Paradise*, no amount of travel to

or extended research in Latin America can equate to dealing with these issues on a long-term basis.¹¹³ To remedy this discrepancy, Roberts and Thanos call for the incorporation of more insider perspectives in the field. The other aspect of this final chapter, then, centers the conversations I have had with those who have resided or currently reside in the city in an effort to reveal complex dialogues of the day-to-day lived experiences of air pollution and the messy ways in which people make sense of them. Humans, as this segment shows, sometimes fail to detect ambient air pollution through the body; other times and for various reasons, they make decisions that go against official warnings advertising environmental danger. But, as this dissertation demonstrates, the stories Mexicans tell about air and its pollution reveal that this elusive but transformative environmental agent is inscribed on the bodies of its residents as well as on the memories and histories of its urban landscape.

¹¹³ J. Timmons Roberts and Nikki Demetria Thanos, *Trouble in Paradise: Globalization and Environmental Crises in Latin America* (New York: Routledge, 2003); environmental psychologist Karina Landeros Mugica's 2013 dissertation has surveyed an impressive 515 residents across various age groups on the topic of air pollution in Mexico City, see Landeros Mugica, "Dimensiones psicosociales."

Chapter One

Through the Aerial Gaze: Air and the Character of the Distant City

Upon arriving at the capital of the Aztec Empire,¹ México-Tenochtitlán, in 1519, Hernán Cortés immediately registered the implications of its unique geographic constraints, most notably its location in the middle of an endorheic basin (**Appendix A-1**). Writing in 1520 to Emperor Charles V, Cortés explained that “...if the natives intended any treachery against us they would have every opportunity from the way in which the city is built, since by removing the bridges at the entrances...they could leave us to die of hunger with no possibility of getting to the mainland...”² Indeed, as a city surrounded entirely by water, connected to land only by causeways, to the inexperienced eye Tenochtitlán was equally dangerous as it was marvelous. Throughout Cortés’s endeavors to capture the México stronghold, he and his soldiers faced similarly treacherous situations as the potential scenario Cortés himself sketched above. For example, in 1521, when Cortés and his men attempted to escape from Iztapalapa, a lakeshore village south of Tenochtitlán, they faced “...water so deep, [flowing] with such impetus,” that, Cortés speculated, “had we not passed the water that night...none of us would have escaped, because we would have been surrounded by water, without having an outlet anywhere.”³

Almost five centuries later, Dr. Elena Fentanes de Torres of Mexico’s National Cancer Institute would utilize the metaphor of entrapment to similarly describe life in the capital, by 1979 a sprawling megacity, calling it the “great, deadly trap.”⁴ This time, however, the offending matter was not the unruly

¹ While “Aztec” has been adopted as an umbrella term to allude to those who established, populated, and ruled the Basin of Mexico from 1325 to 1521 and the Aztecs indeed have their own mytho-historic origins, it reveals little about the nuances of the ethnic makeup, political alliances, and self-identification categories used by the inhabitants themselves. Following the convention laid out by anthropologist Frances Berdan, where necessary this study uses “Aztec” to denote the sizeable civilization of the Basin of Mexico throughout the Late Postclassic period, and “Méxica” more narrowly to represent those who resided specifically in the sister-cities of Tenochtitlán and Tlatelolco. See Frances F. Berdan, *Aztec Archaeology and Ethnohistory* (New York: Cambridge University Press, 2014).

² Hernán Cortés, *Five Letters, 1519–1526*, trans. John Bayard Morris (New York: W.W. Norton & Co., 1928), 86.

³ Hernán Cortés, *Five Letters of Relation to the Emperor Charles V [1519–1526]*, trans. Francis Augustus MacNutt (Cleveland: Arthur H. Clark Co., 1908), 19.

⁴ Rúben Anaya Sarmiento, “La Ciudad de México se encamina irremediamente al ecocidio: La amenaza latente,” *El Día*, June 15, 1981.

waters that saturated the pages of Cortés's letters, but the concoction of noxious airs perpetually draped over the valley.⁵ The lacustrine landscape about which Cortés begrudgingly wrote had, by the mid-1900s, succumbed to the transformative power of a hydraulic engineering regime designed primarily for flood control, but which ultimately extended to desiccation as authorities deemed the waters' removal necessary for the development and expansion of the new colonial city.⁶ From the 1607 initiation of the Desagüe de Huehuetoca—the ambitious public works project to construct a thirteen-kilometer drainage canal-tunnel that would redirect the Cuautitlán River and thus quell the persistent inundations afflicting the capital of New Spain—to the completion of the costly Gran Canal del Desagüe in 1900, the majority of the basin's watery surface area had begun to disappear gradually (**Appendix A-2**).⁷ Popularly memorialized as a

⁵ Although "Basin of Mexico" and "Valley of Mexico" are sometimes used interchangeably, there are differences in shape and degree of enclosure provided by surrounding mountain ranges. Unless otherwise stated in first-person accounts, this dissertation utilizes "Basin" and "Valley" of Mexico to distinguish between two environmental and temporal settings. Use of the word "basin" refers to the pre-colonial/colonial periods, when the hydrological watershed was still intact and drainage was very much a work in progress or stuck in an intermittent state whereas "valley" corresponds to the late-nineteenth-century/twentieth-century, throughout which time a large portion of the lacustrine plain had been drained through artificial means. For a close study of the basin's geographic characteristics, refer to the work of Mexican ecologist Exequiel Ezcurra, especially *De las chinampas a la megalópolis: El medio ambiente en la Cuenca de México* (México, DF: Fondo de Cultura Económica, 1991).

⁶ For an excellent study of colonial flooding, see Richard Everett Boyer, "Mexico City and the Great Flood: Aspects of Life and Society, 1629–1635," (PhD diss., University of Connecticut, 1973).

⁷ Scholars have thoroughly explored the history of the valley's drainage from multiple angles. Nineteenth-century accounts fuse the historical study of the desagüe with contemporary, first-person insights, see Miguel Angel de Quevedo, *Memoria sobre el Valle de México, su desagüe y saneamiento* (México: Tipografía de la Oficina de la Secretaría de Fomento, March 20, 1889); "Drainage of the Mexico Valley," *The Engineer* LXVII (January–June, 1889): 555–556; Isidro Díaz Lombardo, Luis González Obregón, Luis Espinosa, and Rosendo Esparza, eds., *Memoria histórica, técnica y administrativa de las obras del desagüe del Valle de México 1449–1900*, 2 vols. (México: Tipografía de la Oficina Impresora de Estampillas, 1902). An early English-language account, Charles Gibson's *The Aztecs Under Spanish Rule* investigated the desagüe as part of a larger survey of Nahuatl society under Spanish colonialism, using labor records and engineering documents to shed light on the large Indigenous labor force that was essential to the completion of the project, the harsh labor conditions under which they worked and the practices of coercion employed by colonial authorities, and the "extremely fast and severe" decay of villages and towns resulting from diminished access to water. See *The Aztecs Under Spanish Rule: A History of the Indians of the Valley of Mexico, 1519–1810* (Stanford: Stanford University Press, 1964), 6; 237–240; others, in their analyses of pre-Hispanic and colonial hydraulic control, have asserted that the desagüe made flooding worse by uprooting Indigenous flood-control practices, see Michael W. Mathes, "To Save a City: The Desagüe of Mexico-Huehuetoca, 1607," *The Americas* 26, no. 4 (1970): 419–522; as Louisa Schell Hoberman demonstrated in her study on the politics of flood control, the desagüe was an extremely complicated project, located at the intersection of various levels of government, but the Spanish colonial administration was ultimately too decentralized for the project to succeed, see "City Planning in Spanish Colonial Government: The Response of Mexico City to the Problem of Floods," (PhD diss., Columbia University, 1972); for a deeper history of the desagüe as a lens through which to examine the history of colonial technologies see Louisa Schell Hoberman, "Technological Change in a Traditional Society: The Case of the Desagüe in Colonial Mexico," *Technology and Culture* 21, no. 3 (1980): 386–407; Ivonne Del Valle, "Grandeza mexicana and the Lakes of Mexico City: Economy and Ontology in Colonial Technological Development," *Hispanic Issues On Line* 12 (2013): 38–54; geographer Andrew Sluyter has discussed Alexander von Humboldt's perceptions of hydrological change in the Valley of Mexico, see "Humboldt's Mexican Texts and Landscapes," *Geographical Review* 96, no. 3 (July 2006): 361–

symbol of an ostensibly more ecologically balanced⁸ period at the time of Dr. Fentanes's statement, the waters have also been kept alive in the city's environmental imagination by continual bouts of flooding and the ongoing groundwater-related land subsidence crisis, perceived by some Mexicans as the "revenge of the lakes" and as Cortés's 500-year mistake.⁹ Yet historical actors likewise noticed the air with a regularity akin to the weight they placed on studying and appreciating its unique landforms and waterscapes. For the many who wrote about their travels to the country prior to the mid-twentieth century, Mexico City was "...without doubt the most beautiful city in all of the Americas, both for that blue sky that [one] constantly enjoys, and for the richness and solidity of its buildings and temples..."¹⁰ Although it was immaterial and evasive in comparison to the tangibility of its waters or other geographic features, air was a pivotal ingredient in human understandings of the essence of the city, central as well to how these knowledges were communicated in written form.

381; other scholars have examined the desagüe through the lives and plans of its various engineers, including, most prominently, the Hamburg-born Royal Cosmographer Enrico Martínez; Dutch engineer Adrian Boot, who proposed alternatives to complete drainage; and architect Juan Gómez de Trasmonte, see the work of Martínez's biographer, Francisco de la Maza, *Enrico Martínez. Cosmógrafo e impresor de Nueva España* (Ciudad de México: Ediciones de la Sociedad Mexicana de Geografía y Estadística, 1943); Valerie L. Mathes, "Enrico Martínez of New Spain," *The Americas* 33, no. 1 (July 1976): 62–71; John F. López, "'In the Art of My Profession': Adrian Boot and Dutch Water Management in Colonial Mexico City," *Journal of Latin American Geography* 11, no. 2S (January 2012): 35–60; Roberto L. Mayer, "Trasmonte y Boot. Sus vistas de tres ciudades mexicanas en el siglo XVII," *Anales del Instituto de Investigaciones Estéticas* 27, no. 87 (September 2005): 177–198; for drainage during the Porfiriato, see Emily Wakild, "Naturalizing Modernity: Urban Parks, Public Gardens and Drainage Projects in Porfirian Mexico City," *Mexican Studies/Estudios Mexicanos* 23, no. 1 (Winter 2007): 101–123; for a comprehensive, book-length foray into the drainage project, see Candiani, *Dreaming of Dry Land*, 2014.

⁸ Latin American historians such as Matthew Restall and Shawn William Miller have debunked lingering myths of both the Spanish conquest and of pre-Hispanic human-environment interactions, particularly the "Pristine Myth," or the idea that natives lived in a perfectly harmonious state with their natural surroundings. See Matthew Restall, *Seven Myths of the Spanish Conquest* (New York: Oxford University Press, 2003) and Shawn William Miller, *An Environmental History of Latin America* (Cambridge, UK: Cambridge University Press, 2007).

⁹ The water-bearing soft clay beds and layers of volcanic soil with which the city's underground aquifers are intermixed have produced an uneven subsidence pattern throughout the valley, but Mexican experts estimate that Mexico City is sinking at an annual average rate of forty centimeters and has lowered by a total of ten meters since 1900. See Gabriel Auvinet, Edgar Méndez-Sánchez, Moisés Juárez-Camarena, "Soil Fracturing Induced by Land Subsidence in Mexico City," in *Proceedings of the 18th International Conference on Soil Mechanics and Geotechnical Engineering*, Paris, France, 2013, 2921–2924; for useful lake shrinkage figures, see Claudia Agostoni, *Monuments of Progress: Modernization and Public Health in Mexico City, 1876–1910* (Calgary: University of Calgary Press, 2003); for the colonial history of this phenomenon, see Iyonne Del Valle, "On Shaky Ground: Hydraulics, State Formation, and Colonialism in Sixteenth-Century Mexico," *Hispanic Review* 77, no. 2 (2009): 197–220; Madeleine Black, "Revenge of the Lake: An Exploration of Water, Sacrifice, and Regeneration in Mexico City," (Master's thesis, University of Washington, 2017); and Candiani, *Dreaming of Dry Land*, 287.

¹⁰ Juan Niceto de Zamacois, "La Catedral de México," in *México y sus alrededores. Colección de monumentos, trajes y paisajes* (México: Imprenta Litográfica de J. Decaen, 1869), 31.

As much as the incremental departure of the basin's lakes is certainly the most visibly obvious and historiographically salient representation of Mexico City's colonial legacy, and of the broader region's resulting physical transformation, it is not the only, nor, as this chapter argues, the most culturally significant, lens through which to analyze the Valley of Mexico's historical landscape. This distant past, here spanning the sweeping timeframe from the colonial period through the nineteenth century, also serves as a prudent foundation for the investigation of a less-studied but profoundly constitutive natural substance—air—and its importance to the eventual forging of “una visión actual de lo mexicano,” [a view of a quintessential Mexicanness], a distinctiveness that the interminable air pollution described by the doctor above later uprooted and replaced.¹¹ This chapter, and the larger project with which it is associated, suggests that the air Mexico City's inhabitants breathed, marveled over, wrote about, and, later on, sought to regulate is a noteworthy yet underanalyzed thread in its environmental history. Whether it appeared to onlookers as unadulterated, fresh, and therefore “healthy” or, on the opposite end of the spectrum, impure and unhygienic to the point of its enculturation as hazardous, the air was an integral component of residents' historical lived experiences of the city.¹² The heretofore untold story of Mexico City's air, this dissertation contends more broadly, adds much-needed texture not only to its urban environmental history, but its cultural, political, economic, social, and medical histories as well.

Unlike the water, whose allure in the Mexican context was predicated on its absence, air garnered intrigue because it existed in the minds of observers as an all-encompassing, constant, and powerful force. Humans received sensations of and formed perceptions about the air in many forms, which often acted upon the body at the same time. Air was felt as wind, altitude, temperature, and climate; visually

¹¹ Ester Pérez Salas, “La nueva imagen de México a través de la litografía,” in *La fabricación visual del mundo atlántico, 1808–1940*, ed. Maria Eliza Linhares Borges and Víctor Mínguez (Castelló de la Plana, Spain: Publicaciones de la Universitat Jaume I, 2010), 81.

¹² Environmental historian Coneverly Bolton Valencius's study of nineteenth-century American westward expansion takes seriously the “matter-of-fact, plainspoken assessments” of land made by settlers. In her work, such descriptions—a “common sense of another time”—often portrayed landscapes as healthy or unhealthy. In doing so, she argues, they served a logical purpose because they helped people determine where to settle and make sense of unfamiliar terrain. Furthermore, they demonstrated the unique, not widely apparent ways that human bodies were tied to their surroundings, as the same discourses of health used to communicate about the landscape also applied to the well-being of the body. See Coneverly Bolton Valencius, *The Health of the Country: How American Settlers Understood Themselves and their Land* (New York: Basic Books, 2002), 2, 4.

perceived as sky, the atmospheric space where sunsets and panoramic views were displayed for humanity's optical pleasure. Even smell and audition were faculties by which individual bodies processed information about the air—air, for example, could smell sweet in the early morning hours or stale near stagnant bodies of water while the sound of chirping birds, like a symphony, could act as a therapeutic. Furthermore, as the acclaimed nineteenth-century hydraulic engineer Francisco de Garay has suggested for water in his 1888 study of the valley's drainage, landscape elements could also stimulate the subconscious. In Garay's work, the mental image of Mexico City's waters conjured up a sharp delineation between a pre-Hispanic, Indigenous landscape and the Spanish colonial version, which overshadowed but did not overtake the former.¹³ Air, on the other hand, exemplified the continuity of nature during eras of immense change. The basin's distinguishingly clear atmosphere, and the untainted air flowing within it, shaped a unique sense of place, one which enjoyed a robust longevity, even as the effluvia emanating from the desiccated valley during the period of intense industrialization beginning in the mid-twentieth century violated the sky. To be sure, writers did not ignore the more displeasing qualities of the Mexico City's air. Coming into contact with “pestilential vapors” oozing out from gutters or the smoke and dust particles that “render[ed] the atmosphere impure” were all-too-common human-nature skirmishes in a city built upon a lake.¹⁴ “Now and then you will catch one [an unwholesome odour],” admitted scholar John James Aubertin during his 1881 visit, “which discharges its vile venom with sufficient volume to bid you fly.” These were momentary nuisances, however: “in general,” Aubertin clarified, “you are not more than conscious of a certain unpleasant sourness in the air.”¹⁵ As such, stench paled in comparison to the overpowering splendor of the big sky hovering above them.

¹³ Demonstrating the importance of the waters to the landscape, he writes that without the waters, “*La ciudad nueva no podía flotar, no podía huir, tenía que defenderse [sic]*.” [The new city could not float, could not escape, it had to defend itself.] See Francisco de Garay, *El Valle de México: Apuntes históricos sobre su hidrografía* (México: Tipografía de la Oficina de la Secretaría de Fomento, 1888), 23–24.

¹⁴ Francisco Cervantes de Salazar, *Life in the Imperial and Loyal City of Mexico in New Spain and the Royal and Pontifical University of Mexico as Described in the Dialogues for the Study of the Latin Language Prepared by Francisco Cervantes de Salazar for Use in His Classes and Printed in 1554 by Juan Pablos* [1554], trans. Minnie Lee Barrett Shepard (Austin: University of Texas Press, 1953), 39; Howard Conkling, *Mexico and the Mexicans: Or, Notes of Travel in the Winter and Spring of 1883* (New York: Taintor Brothers, Merrill & Co., 1883), 66.

¹⁵ John James Aubertin, *A Flight to Mexico* (London: Kegan Paul, Trench & Co., 1882), 102–103.

Both local and foreign observers took meticulous note of the qualities of the city's atmosphere, using the air to craft a narrative portrait of the city as enchanting, naturally beautiful, and paradisiacal. Their accounts indicate that although air was ubiquitous, it was anything but unremarkable. Rather, air was agential, situated at the heart of both phenomenological and sensorial experiences of the city. For example, the rarified atmosphere of a civilization elevated 7,382 feet in the sky was at the crux of a medico-cultural peculiarity, *la altura*, which sickened some while simultaneously animating others. Moving air, or wind, helped stave off illnesses by “allow[ing] the smells of the city to escape rapidly” whereas “sudden contact” with the night air could prove fatal.¹⁶ Prevalent among discussions of climate, weather, altitude, and scenery, Mexico City's air engendered bodily and affective reactions. In their penchant for giving clear and vividly explicit details, nineteenth-century authors, working in the descriptive tradition utilized by explorers and chroniclers throughout the colonial era, were stewards of the faithful reproduction of this hard-to-define environmental phenomenon and the corporeal sensations it effectuated.

Ultimately, however, many expressed reservations about the ability of text and even image to do justice to the almost unbelievable and unequivocal natural beauty of the area's land- and skyline. “Who can paint the surpassing glory of the entrancing scene for eyes which have not been touched by itself with the anointing chrism of vision?” wondered the Irish-American poet Mary Elizabeth Blake during her 1888 sojourn in the city. “If no more beauty than this one view can give were added to one's inner consciousness,” she added, “the journey to Mexico would be fully requited.”¹⁷ Like Blake, Frederick Albion Ober, an American businessman-turned-naturalist who paid a visit to the city in the early 1880s, conceded in his diary that the city's view “is a view too grand for simple description, too vast, even, for an artist to grasp and depict on a single canvas; and I hesitate to attempt more than separate portions of it

¹⁶ A. Gringo [pseud], *Through the Land of the Aztecs; Or Life and Travels in Mexico* (London: Sampson, Low, Marston, & Company, 1892), 17–19.

¹⁷ Mary Elizabeth Blake (McGrath), *Mexico: Picturesque, Political, Progressive* (Boston: Lee and Shepard Publishers, 1888), 76.

at a time.”¹⁸ Businessman Thomas W. Price similarly concluded that one simply had to experience the view firsthand, but singled out the sky as the feature which made the valley’s landscape unique: “The sky is wondrously beautiful,” he noted during his 1878 excursion, “it must be seen, as we see it now, for one to know just how beautiful a Mexican sky can be.”¹⁹

Foregrounding the lustrous sky in their writings of the landscape, nineteenth-century travelers created an image of Mexico City that was enticing enough that it generated interest among audiences living outside of Mexico. While they served an informational purpose, their atmospheric commentaries also doubled in the promotion of travel to the land of an eternal spring. Long before the rise of motoring, or automotive tourism, and strategic marketing campaigns designed to promote car travel to Mexico in the early 1930s, adventurers composed educational and engrossing guidebooks informed by their embodied experiences of the city. In these records, authors fixated on the atmosphere and the valley’s characteristically salubrious climate, effectively turning them into selling points. These favorable air-centric interpretations endured well into the mid- to late twentieth century, taking shape as nostalgic references to the air of the bygone days explored in detail in later chapters. In this last regard, the atmospheric narratives of the nineteenth century helped establish an important precedent in political approaches to the problem of air pollution, which had become a public health concern by the last third of the twentieth century. As subsequent chapters suggest, this representation of air was appropriated by city officials and tourism boosters who wielded it as a political tool to preserve a semblance of urban environmental stability and to counter surfacing claims of the alarming health effects of atmospheric pollution. Relying on the veritable “aerial gaze” as developed in the musings of explorers, artists, trade advisers, investors, diplomatic and recreational visitors to Mexico City, as well as the local residents who put forth their own commentary throughout the colonial, national, and early modern eras, this chapter reveals that air aided in the creation of “ecological place meaning,” or a longstanding sense of place

¹⁸ Frederick Albion Ober, *Travels in Mexico and Life among the Mexicans* (San Francisco: J. Dewing and Co., 1884), 236–237.

¹⁹ Thomas W. Price, *Brief notes taken on a strip to the city of Mexico in 1878* (n.p., 1878), 68.

fashioned out of the emotional, embodied, aesthetic, scientific, and cultural connections to and entanglements with the atmosphere.²⁰

As many colonial environmental historians of Latin America have demonstrated, domination over the region's unique geographies was critical to both imperial conquest and the long-term colonial project.²¹ To illustrate this, a preponderance of scholars have gravitated towards analysis of the terrestrial, shedding light on the ways in which these contests played out through the development of infrastructure, especially vis-à-vis the construction of railroads; churches, schools, and other landmarks; street lighting systems; and subterranean flood control networks, as well as through the reordering of urban public space as in the case of city beautification projects such as park and garden creation. Air, too, was "a major aspect of the environment up for control," as historian Emily Wakild writes.²² Conquered through narrative and artistic means rather than through the physical manipulation of nature, Mexico City's sky became much more than the setting for its picturesque scenery. Rather, it emerged as both a cultural artefact and the domain of scientific and commercial interest. Some nineteenth-century explorers, like the aforementioned Frederick Ober, comprehended the act of writing about Mexico's landscape in these terms: "...purposing to sally forth and attack the city leisurely, *as Cortés did*," he explained that he would "[put] behind me a portion [of the city] at a time, till all should be conquered."²³ While humans could not directly exercise command over the air as they did over the soil or water, they applied other techniques to achieve a similar effect. In their dedicated, colorful renditions of the landscape, prepared using any

²⁰ Alex Russ, Scott J. Peters, Marianne E. Krasny, and Richard C. Stedman, "Development of Ecological Place Meaning in New York City," *The Journal of Environmental Education* 46, no. 2 (April 2015): 74.

²¹ Cynthia Radding argues for the "centrality of the environment to stories of power and colonial confrontation," see *Landscapes of Power and Identity: Comparative Histories in the Sonoran Desert and the Forests of Amazonia from Colony to Republic* (Durham: Duke University Press, 2005), 5; according to Andrew Sluyter, "Beginning in the fifteenth century...the landscapes of the world successively become geographic objects of European power...material landscape transformations have continued to affect postcolonial land uses..." see *Colonialism and Landscape: Postcolonial Theory and Applications* (Lanham, MD: Rowman & Littlefield, 2002), 3, 4; for an elaboration of the postcolonial impacts Sluyter mentions, see Keith Pezzoli, *Human Settlements and Planning for Ecological Sustainability: The Case of Mexico City* (Cambridge, MA: The MIT Press, 1998).

²² Emily Wakild has shown that water and air were essential to the production of a Porfirian modernity. The greenery of Chapultepec Park, for example, was said to oxygenate the dusty airs of fledgling industrialization, see "Naturalizing Modernity: Urban Parks, Public Gardens and Drainage Projects in Porfirian Mexico City," *Mexican Studies/Estudios Mexicanos* 23, no. 1 (2013): 163–176.

²³ Ober, *Travels in Mexico*, 222. [Emphasis added by author]

combination of the written word, the paintbrush, and the photograph, spectators both “cast their descriptive imprint” on Mexico City *and* acknowledged that the atmosphere had the power to sculpt perceptions of the evolving city.²⁴

Much of environmental history scholarship has come to understand “landscape” as a conceptual catchall that, at its most basic level, illustrates the constructedness of an environment.²⁵ Human values, actions, and cultural systems fuse with material nature and natural processes to create, mediate, or reshape the often-terrestrial spaces we recognize as landscapes. But these interactions also impact that which extends beyond the terra firma. Grounded in these concerns, this project redirects the analytic focus away from Earth’s geophysical terrain, whose dramatic kaleidoscope of features tend to monopolize the observer’s line of sight. It ventures instead above the horizon line, towards the expansive sky. In this, it echoes the conclusions reached in *Skyscapes*, a recent study on archaeoastronomy, a field situated at the intersection of cultural astrology, archaeology, and anthropology, that “skyscapes are as much a part of the lived-in, experienced, and socially constructed world as the landscapes below our feet, the seascapes lapping our shores, and the taskscape that structure the rhythm of everyday life.”²⁶ In making these connections, this chapter furthers the wider, multi-disciplinary effort to link human and

²⁴ Radding, *Landscapes of Power*, 5.

²⁵ Environmental historians across geographies, chronologies, and ecologies have engaged landscapes in many ways, blurring the divide between nature and culture. A foundational study, William Cronon’s *Nature’s Metropolis* examines how people, modes of production, and capital flows connected rural and urban space in the making of nineteenth-century Chicago, see William Cronon, *Nature’s Metropolis: Chicago and the Great West* (New York: W.W. Norton, 1991). For a consideration of urban, suburban, and rural spaces across time and place, see Jeffery M. Diefendorf and Kurk Dorsey, eds., *City, Country, Empire: Landscapes in Environmental History* (Pittsburgh: University of Pittsburgh Press, 2005). Nancy Langston’s work on wetlands sheds light on water’s role in landscape creation, see Nancy Langston, *Where Land and Water Meet: A Western Landscape Transformed* (Seattle: University of Washington Press, 2015). On living memory in industrial and post-disaster landscapes in Mexico, see Salas Landa, “Crude Residues.” Landscape history and environmental history have also diverged in crucial ways, owing to the “youth” of landscape history and the metanarrative of declension in environmental history, which paints human modifications of the land in a negative light, see Sonja Duempelmann, “Taking Turns: Landscape and Environmental History at the Crossroads,” *Landscape Research* 36, no. 6 (2011): 625–640. However, David Andrew Biggs centers possibly the most destructive human act—war—showing how landscape and environmental history can fruitfully and thoughtfully combined, see David Andrew Biggs, *Footprints of War: Militarized Landscapes in Vietnam* (Seattle, Washington University Press, 2018).

²⁶ Fabio Silva and Nicholas Campion, eds., *Skyscapes: The Role and Importance of Sky in Archaeology* (Oxford, UK: Oxbow Books, 2015), 140; According to social anthropologist Tim Ingold, the idea of the taskscape “set[s] out from the premise of people’s active, perceptual engagement in the world,” and the ways in which human activities shape space. See Tim Ingold, “The Temporality of the Landscape,” *World Archaeology* 25, no. 2 (October 1993): 174.

natural agency into a unified narrative, adding nuance to scholarship that has long recognized nature as a powerful determinant in the functions and endeavors of humankind.

In its desire to understand the ways in which air molded the reputation of the city, this chapter catalogues and interrogates Mexico City's atmospheric vistas as told largely through the eyes of travelers, artists, poets, novelists, diplomats, and scientists, both domestic and foreign (**Appendix B**). Many of these works, self-published and oftentimes written expressly for a specific audience, usually potential tourists or governments and foreign publishing houses in cases of commissioned authorship, are familiar in the historiography of nineteenth-century Mexico.²⁷ Their encyclopedic coverage of daily customs and society, institutions, and political events offers a wealth of information that historians have found useful for piecing together the paradoxical inner workings of this turbulent period, which saw independence from Spain, armed conflict with the United States, changing borders resulting from territorial loss, civil war, an imperialist incursion by France, the rise of a dictatorship, population growth and economic development, and extreme socioeconomic inequality. Yet, such studies warrant reexamination for the insight and value they contribute to environmental history, demonstrating the power of the "contemplative (distanced) savoring" of landscape in rescuing the ordinary from the realm of the mundane.²⁸ This was certainly applicable in discussions of air matters such as weather for which, according to one 1883 account, "It is hardly custom to comment on the weather in Mexico, at least in the agreeable season... 'A pleasant day?' says the listener, with lifted eyebrows, should you do so. 'Well, why

²⁷ Private diaries and notes, however, were the exceptions, as these writings were not intended for a public audience. On publishing his writing, Thomas Price recalled, "The idea of printing these 'Jottings' was far from my thought when I wrote them. Indeed, when friends first suggested it to me, it sounded like a joke at some who, with but little opportunity for observation, have published learned histories and descriptions of the countries they have visited. This is not a description, much less a history, of Mexico; it claims to be only the notes of a plain business man on what impressed him as of most interest in a trip to and from the City of Mexico, printed for friends who have inquired of him concerning the country, climate, and people of 'Our Next Neighbor.'" *Brief notes*, 5; The preface in visitor William Bullock's travel journal stipulates that "The habits of my life have been so little of a literary nature, that I should have ventured to obtrude any work upon the public with extreme diffidence..." See William Bullock, *Six Months' Residence and Travel in Mexico: Containing Remarks on the State of New Spain, Its Natural Productions, State of Society, Manufactures, Trade, Agriculture, and Antiquities, &c.: with plates and maps* (London: John Murray, 1824), v; J. H. Bates also noted that his "brief notes written at the request of my daughter... were intended only for private distribution among friends and relatives." J. H. Bates, *Notes of a Tour in Mexico and California* (New York: Burr Printing House, 1887), n.p.

²⁸ Krystyna Wilkoszewska, "Landscape and the environment," *Polish Journal of Landscape Studies* 2, no. 4-5 (July 2019): 10.

not?”²⁹ The authors of travel literature, as the preceding snippet indicates, were also the individuals who most keenly identified and eloquently spoke about the elemental appeal of the air, demonstrating one clever late-nineteenth-century visitor’s remark that, “...in the eyes of strangers, the novel overshadows everything else.”³⁰ Travelers’ thoughtful and vocal deliberations on Mexico City and its nearby environs, particularly the unifying sky coursing like an atmospheric river across the entire valley, were at the forefront of the making and memorializing of a new landscape. Yet theirs is a discourse traditionally valued more for its revelations about the country’s social, political, and economic goings-on than for what it had to say about the sky. Indeed, even art historians or historians of aesthetics, for whom such writings are essential sources for teasing out the relationship between art, nature, and culture, have tended to look beyond the gaze and have in effect “slight[ed]” the scenic sights that travelers spent pages upon pages describing.³¹ Such aesthetic appreciations, as environmental philosopher Emily Brady has pointed out, are problematically “dismissed as...decorative and trivial” in comparison to what traveler writers saw transpiring on the surface.³²

In its fresh consideration of these accounts, this chapter isolates what I refer to throughout as the “aerial gaze” as a particularly useful analytical tool to assist in both problematizing the insights of

²⁹ William Henry Bishop, *Old Mexico and her lost provinces: A journey in Mexico, Southern California, and Arizona by way of Cuba* (New York: Harper & Brothers, 1883), 55.

³⁰ José Margati, *A trip to the city of Mexico* (Boston: Putnam, Messervy, & Co., 1885), 47.

³¹ Robert Wellman Campbell, “A Landscape History of the Black Hills,” (PhD diss., University of Kansas, 2006), 8. Arguing that historians have “slighted sight,” this work makes the case for vision as a mode of perception in the study of history. While much has been done to develop visual or aesthetic analysis as a historical methodology of its own since then, this dissertation contends that the beautiful sights these travelers witnessed still remains slighted in the historiography. Indeed, as Lourdes Parra Lazcano has pointed out, the “picture-perfect image” of the valley as viewed from above dissipated “after foreign travelers toured Mexico...[and] started to describe all the problems of Mexican society from an imperialist position.” This has led scholars to look beyond the gaze or to perceive of the gaze as a veneer. While this chapter agrees with this conclusion, it also suggests that what and how gazers wrote about the valley’s natural features also had a long-lasting impact on Mexico City’s cultural landscape. Descriptions of skies and terrain were themselves products of unique positionalities and world-views. The scenery they saw from afar was as important in the cultivation of the city’s appeal as the activities they observed on the ground. See Lourdes Parra Lazcano, “Foreign Travelers’ Accounts and Fanny Calderón de la Barca’s *Life in Mexico*,” in *The Oxford Research Encyclopedia of Latin American History*, ed. William Beezley, (Oxford and New York: Oxford University Press, April 2019); for a study of the role of nineteenth-century art and image in the creation of the Atlantic more broadly, see Maria Eliza Linhares Borges and Víctor Mínguez, eds., *La fabricación visual del mundo atlántico, 1808–1940* (Castelló de la Plana, Spain: Publicaciones de la Universitat Jaume I, 2010).

³² For more on the study of environmental aesthetics, see the work of Emily Brady, especially *Aesthetics of the Natural Environment* (Edinburgh, UK: Edinburgh University Press, 2003); “Aesthetics in Practice: Valuing the Natural World,” in *Landscapes: Themes in Environmental History*, ed. Sarah Johnson (Cambridge, UK: The White Horse Press, 2010), 16.

those who thought to register their sensory experiences of the city and demonstrating the “leading role” of air in the ways that people perceived of and experienced the city.³³ The air’s clarity, a clarity that travelers frequently commented on, facilitated landscape viewing, an important nineteenth-century pastime. This chapter thus focuses on what clear air allowed one to see—mountains, wetlands, and foliage, and skylines filled with clouds, storms, birds, and celestial bodies—and how travelers used what they saw to understand the mysterious capital of Mexico.

This chapter expands on historian Cynthia Radding’s “landscape-as-view” approach by identifying the gaze, the very act of seeing or looking at something—in this case, an expanse of scenery—as a form of knowledge construction used to “confer meaning” upon a space.³⁴ Mary Louise Pratt has elucidated the concept of the gaze in her study of European travel writing, *Imperial Eyes*. She writes, that “the eye ‘commands’ what falls within its gaze; mountains and valleys ‘show themselves,’ ‘present a picture;’ the country ‘opens up’ before the visitors.”³⁵ Fleeting and emphasizing a singular viewpoint, one formulated out of personal observation but undeniably influenced by the overflowing nationalism and romanticism of the period, aerial gazes were not impartial nor accidental. Sightseers gazed; they gazed

³³ Art historian Carla Hermann uses this terminology to describe the importance of the harbor (Bay of Guanabara in Rio de Janeiro) in Robert Burford’s 1820s panorama, see Carla Hermann, “Landscape and power: Taunay’s and Burford’s panoramas of Rio de Janeiro in Paris and London in the first half of the Nineteenth century,” *Artologie* 10 (2017): n.p.

³⁴ In this, I am motivated by theoretical discussions of the gaze as expounded by thinkers Michel Foucault and Jean-Paul Sartre, who have developed this term to more deeply explore the social dynamics of power as the played out in different settings and dimensions. See, for example, the concepts of surveillance and the medical gaze in Michel Foucault, *Discipline and Punish: The Birth of the Modern Prison*, trans. Alan Sheridan (New York: Random House, 1979); *The Birth of the Clinic: An Archaeology of Medical Perception*, trans. A.M. Sheridan (London, UK: Tavistock Publications Limited, 1973), respectively; and “the look” in Jean-Paul Sartre, *Being and Nothingness: An Essay on Phenomenological Ontology*, trans. Hazel E. Barnes (New York: Philosophical Library, 1956). Media studies scholar Marita Sturken and visual culture critic Lisa Cartwright’s comprehensive and widely cited *Practices of Looking* is also applicable as it argues that looking extends beyond the human capacity to see; looking is “a practice much like speaking, writing, or signing. Looking involves learning to interpret, and like other practices, looking involves relationships of power...Through looking,” they write, “we negotiate social relationships and meanings.” See Marita Sturken and Lisa Cartwright, *Practices of Looking: An Introduction to Visual Culture*, 2nd ed. (New York: Oxford University Press, 2009), 9; see also Jennifer Reinhardt, “Gaze,” *The Chicago School of Media Theory*, available from: <https://lucian.uchicago.edu/blogs/mediatheory/keywords/gaze/>, accessed March 29, 2018. Historians have applied these theories to travel writing, resulting in the “traveler’s gaze” and the “conqueror’s gaze,” concepts which combine analysis of race and racism, ethnocentrism, imperialism, science, and the environment, see Margaret Hunt, “Racism, Imperialism, and the Traveler’s Gaze in Eighteenth-Century England,” *Journal of British Studies* 32, no. 4 (October 1993): 333–357; Mary Louise Pratt, *Imperial Eyes: Travel Writing and Transculturation* (New York: Routledge, 1992).

³⁵ Pratt, *Imperial Eyes*, 59; see also Lourdes Parra Lazcano, “Transcultural performativities: travel literature by Mexican women writers,” (PhD diss., University of Leeds, 2018).

often, taking in the valley's presentations of striking panoramas with intent. Whether positioned atop one of the many mountains or hills bordering the city, inside the towers of the Metropolitan Cathedral, on the marble terraces of the renowned gardens of the Chapultepec Palace, on an apartment balcony or *azotea* (defined by one traveler as a "flat, paved roof, [and] delightful retreat on summer nights"), or simply by walking along the city's streets and tree-adorned *paseos* (plazas) and admiring the "enchanted vistas along the avenues that stretch in every direction," historical actors displayed a remarkable mindfulness for the atmosphere surrounding them.³⁶ Both the earthly bound components *and* everything not on the earth—air, clouds, stars, the sun, birds—featured widely in travelers' recollections of Mexico City, but the air in particular was agential and could influence feelings and senses. Furthermore, eyewitnesses, responding to a plethora of mostly visual, but also auditory and olfactory stimuli, captured *portions* of natural configurations rather than an entire landscape, and thus the visions about which they wrote were inherently fragmentary, bound as much by the limitations of the human eye as by their cultural beliefs or worldviews. Attention to their aerial gazes provides a window into not just what contemporary viewers saw or how a previous version of a city may have looked according to a historically contingent vantage point, but how these nature-based discursive depictions assigned value to, and assessed the merits of, a space—how they created a landscape. In documenting their recollections, they reproduced not only the city's images, but a distinct image of the city.

Developing the Aerial Gaze: Distant Descriptions of Landscape

Nature [is] considered under a two-fold aspect: in the pure objectivity of external phenomena, and in their inner reflection in the mind.

Alexander von Humboldt, *Cosmos*, 1845³⁷

...[A]esthetic experience is sometimes the most visceral, felt experience we can have of nature.

Emily Brady, "Aesthetics in Practice," 2010³⁸

³⁶ Brantz Mayer, *Mexico As It Was, and As It Is* (New York: J. Winchester, 1844), 50; Gringo [pseud], *Through the Land of the Aztecs*, 30.

³⁷ Alexander von Humboldt, *Cosmos: A Sketch of the Physical Description of the Universe* [1827–1828], trans. E.C. Otté and H. Paul, vol. 4 (New York: Harper & Brothers Publishing, 1877), iii.

³⁸ Brady, "Aesthetics in Practice," 18.

In 1841, American lawyer Brantz Mayer left his hometown of Baltimore, Maryland, to tour Mexico for the first time in his newly appointed role as a diplomatic representative. Traveling on horseback, Mayer's trip to Mexico City began in Cholula, Puebla, located just under eighty miles southeast of Mexico City; over the steep, mountainous terrain of the Trans-Mexican Volcanic Belt, specifically the trails between Mount Tláloc and the snow-capped Iztaccíhuatl volcano; through the winding, forested woods concentrated at their base; and across the flat, marshy lands of the formerly grand lakes Texcoco and Chalco. Detailing his journey in what would become Mayer's first published book upon his return to Maryland in 1844, *Mexico As It Was, and As It Is*, he commented that he felt "in some measure bound to make for you [the reader] a *catalogue* of this valley's features, though," he added, "I am confident I must fail to describe or paint them." He went on to painstakingly recount his entrance to the country's capital:

I am really afraid to describe this valley to you, as I dislike to deal in hyperboles. I have seen the Simplon—the Splügen—the view from Rhigi—the 'wide and winding Rhine'—and the prospect from Vesuvius over the lovely bay of Naples...but none of these compare with the Valley of Mexico. They want some one of the elements of grandeur, all of which are gathered here...Conceive yourself placed on a mountain nearly two thousand feet above the valley, and nine thousand above the level of the sea. A sky above you of the most perfect azure, without a cloud, and an atmosphere so transparently pure, that the remotest objects at the distance of many leagues are as distinctly visible as if at hand. The gigantic scale of everything first strikes you—you seem to be looking down upon a *world*. No other mountain and valley view has such an assemblage of features, because nowhere else are the mountains at the same time so high, the valley so wide, or filled with such variety of land and water...I could have gazed for hours at this little world while the sun and passing vapor chequered the fields...³⁹

While the azure sky indeed struck Mayer as impressive, he dedicated more attention to gazing in his reflection. Gazing allowed him to "look down upon a world" and witness the "gigantic scale of everything," so extensive that he surmised it would take hours to fully comprehend. The power of the gaze, then, rested in an individual's privileged ability to own the landscape through vision, bringing the entirety of the valley—its peaks, various landforms, and water bodies—into the view of the visitor. The Mexico City that Mayer eagerly observed from the heights of an unnamed but bountiful precipice might

³⁹ Mayer, *Mexico As It Was*, 34–35. [Emphasis in original]

not have looked entirely different from the panorama displayed in prolific Mexican painter José María Velasco Gómez's 1875 masterpiece, *Valle de México desde el cerro de Santa Isabel*.⁴⁰ In Velasco's painting (**Figure 1.1**), an outwardly serene, blue sky hosts wispy clouds and storm activity in the distance, bestowing a golden light onto the hilly terrain, peppered by smooth and stagnant patches of lake. Popocatepetl and Iztaccíhuatl, distinguishable only by their snow-capped summits, fade into the pale atmosphere. Three figures in the foreground, a mother and her two children led by two small animals, carry foraged items in baskets on their backs. The invisible wind makes its presence known as it works to contort the woman's *rebozo* (shawl), giving a sense of atmospheric envelopment.



Figure 1.1: Atmospheric and Natural Beauty of the Valley of Mexico. José María Velasco, *Valle de México desde el cerro de Santa Isabel* (The Valley of Mexico from the Santa Isabel Hillside), 1875, oil on canvas, 137.5 x 226 cm (Museo Nacional de Arte, INBA, Mexico City).

⁴⁰ I am grateful to John Mason Hart for suggesting consultation of non-textual sources such as landscape paintings and the work of José María Velasco in particular for insight into historical depictions of the invisible natural element that is the air.

The scene conveyed in *Valle de México* likely engulfed travelers who came to Mexico City before and after Mayer, as they took similarly scenic routes to traverse the valley and were similarly surprised by the sights. Many stopped to jot down a few impressions about its physical attributes and pleasing landscape along the way. In this, skylscapes were key components of the views that so deeply captivated their attention. Though the valley's atmospheric features and phenomena—its clarity, sunshine, aridity, light cloud coverage, and generally comfortable temperature—proved more challenging to portray through text than the terrestrial environment, nature writers succeeded in crafting scintillating, multidimensional descriptions of atmospheric sights by detailing not only the visual forms in which they manifested (the “pink atmosphere of a setting sun,” for example) but their effects on the body and mind.⁴¹ Travelers’ “aesthetic enjoyment,” as environmental aesthetics scholar Ronald W. Hepburn has called it, resulted from their full-bodied engagements with the sky and the air.⁴² Whether their reminiscences manifested as long-winded but poetic narratives, technical assessments, or as visual reproductions of arresting sights, their air-centric remarks helped establish and maintain the city's ambiance of salubrious oasis, to some the “garden of the world” completely encrusted by a “grand amphitheater of mountains,” as Mexican poet Marcos Arróniz put it in 1858.⁴³ The following section, then, examines how foreign explorers formed opinions about the city through their aerial gazes. It places emphasis on travelers' first looks, or impressions, of the valley—special moments, like that of Mayer's, which were often (but not always) obtained from high ground, that substantiated air as an important component of the landscape. First gazes happened at different times for different people who wrote about their travels. Accordingly, this section does not present a chronological register of gazes; rather, it moves along thematically, considering the logistics of gazing (how and from which locations people

⁴¹ Michael Wineburgh, *Where to Spend the Winter Months. A Birdseye View of a Trip to Mexico, via Havana* (New York: M. Wineburgh & Co., 1880), 40.

⁴² Ronald W. Hepburn, “The Aesthetics of Sky and Space,” *Environmental Values* 19 (2010): 275.

⁴³ Ashbel K. Shepard, *The Land of the Aztecs: Or, Two Years in Mexico* (Albany: Weed, Parsons, & Company, 1859), 56; Marcos Arróniz, *Manual de viajero en Méjico, o Compendio de la historia de la ciudad de Méjico* (Paris: Librería de Rosa y Bouret, 1858), 219.

acquired scenic views of the valley) as well as how atmospheric sights communicated knowledge of the city.

Although brimming with a sense of wonderment typical of the first-time visitor, depictions like that which opens this section constituted part of an almost formulaic approach to travel manual and guidebook writing in the nineteenth century. The verbose manner in which travelers wrote and, as art historian Stacie G. Widdifield and geographer Jeffrey M. Banister have shown, the visual tendencies to which artists of this time subscribed were grounded in stylistic conventions that date back to the sixteenth century.⁴⁴ However, the 1800s in Mexico witnessed an influx of tourists from the North Atlantic attracted by Mexico's new status as an independent nation, leading to increased narrative output. Intellectuals, technical experts, diplomats, journalists, and financiers alike documented adventures as well as business opportunities during the nineteenth century. In the process, their writings gave a view into a rapidly changing physical geography, a consequence of railroad construction, hydraulic engineering, and other large infrastructure projects undertaken by the federal government and supported by foreign capital. During this period, almanac and travel guide production also experienced peaks in rough correlation with the resolution of major political upheavals, such as the ends of the War of Independence against Spain in 1821, the Mexican-American War in 1848, the War of Reform in 1861, Mexico's defeat of the French in the Battle of Puebla 1862, and the subsequent ousting of Emperor Maximilian in 1867. As historian Rachel A. Moore has deftly explained in *Forty Miles from the Sea*, travelogues, local histories, and tourist primers became especially useful tools in the "assert[ion] of Mexican autonomy from foreign powers," yet they also helped Mexico "remain accessible to other foreign travelers."⁴⁵ Some nineteenth-century travel writers' motivations for engaging in guidebook production were couched under the astute perception of "an increasingly popular demand for a work which, while conducting the reader by pleasant paths through the most interesting portions of the Republic, should convey at the same time information

⁴⁴ Stacie G. Widdifield and Jeffrey M. Banister, "Seeing Water in Early Twentieth-Century Mexico City: Henry Wellge's *Perspective Plan of the City and Valley of Mexico*, DF, 1906," *Anales del Instituto de Investigaciones Estéticas* 37, no. 107 (October 2015): 10, 14.

⁴⁵ Rachel A. Moore, *Forty Miles from the Sea: Xalapa, the Public Sphere, and the Atlantic World in Nineteenth-Century Mexico* (Tucson: University of Arizona Press, 2011), 20–22.

of lasting value.”⁴⁶ Educational as much as they were entertaining, these accounts intermixed the generally familiar historical creation narrative, which typically manifested as the well-told story of the Aztec founding and/or the Spanish conquest of Tenochtitlán, with a description of their mode of travel; the passage they took to reach the city; and detailed empirical insights, verifiable through experimental as well as experiential observation, of the capital.

Merchant Michael Wineburgh’s report on his visit to the “City of Montezuma” exemplifies this methodical approach, incorporating historical narrative and directional signposting with a notable diagnosis on the city’s climate. During the latter half of the nineteenth century, conceivably between 1875 and 1879, Wineburgh boarded a steamship bound for Mexico via New York, New York, and Havana, Cuba—a “most agreeable and pleasant route” for tourists according to the businessman. Once the passenger ship docked in Mexico, he continued westward, arriving to the country’s capital from Veracruz by railroad, a long and difficult journey that took him “into the clouds to gaze upon nature in miniature...” (**Appendix A-6**). Of Mexico City, he wrote that it was a “paradise of climates,” and that “the air is just right every day throughout the year.”⁴⁷ Wineburgh estimated that Mexico City boasted thirteen hours and fifty minutes as its longest period of daylight, an impressive stretch of time that likely gave other travelers ample opportunity to experience its climate and judge the quality of its daytime airs.

Not only did daylight offer prime conditions for sightseeing, but it also ensured exposure to the air at its best and most enjoyable. Travel writer and wife of the Spanish ambassador to the newly independent Mexico Frances “Fanny” Erskine Inglis Calderón de la Barca, writing in the early 1840s, shared similar sentiments when she deemed the early-morning air “cool, but...by ten o’clock, the air is as soft and balmy as on a summer day...”⁴⁸ Statements highlighting the “fresh afternoon air” or the “delicious” and “sweet” morning atmosphere “sometimes charged with mist” made temporally-specific claims to an air of a seemingly more pristine quality.⁴⁹ They also lent an air of credibility to the more

⁴⁶ Ober, *Travels in Mexico*, vii.

⁴⁷ Wineburgh, *Where to Spend the Winter Months*, 5, 26, 41.

⁴⁸ Frances (Erskine Inglis) Calderón de la Barca, *Life in Mexico, During a Residence Of Two Years In That Country*, vol. 1 (Boston: Charles C. Little and James Brown, 1843), 81.

⁴⁹ Arróniz, *Manual de viajero*, 32; Gringo [pseud], *Through the Land of the Aztecs*, 16–17.

generalist inferences appearing in the writings of those whose stays were of a prolonged duration. They helped to substantiate, for instance, American lawyer Alfred Ronald Conkling's 1884 contention that "A clear sky prevails, as a rule, during the entire year, except for a few hours of the day during rainy season," or the opinion of Ashbel K. Shepard, who spent two years in the city in the late 1850s, that "...every day is glorious in Mexico."⁵⁰ Whether these authors made evidential, time-related distinctions or wrote in much broader strokes, they nevertheless participated in creating an ontology of the city's airs based on embodied and sensorial knowledge as well as the perceived visual appeal of the sky.

Identifying the idiosyncrasies of Mexico City's landscape was an activity in which many travel writers engaged. Qualitative and quantitative assessments proliferated throughout their ethnographic studies, but no description was as dramatic or as generous in the amount of detail supplied as that of the opportune "first sight."⁵¹ These introductory but much-anticipated first-contact, panoramic surveys of the valley represented the instances in which the grandest, most conspicuous view and culturally-defined perception of the atmosphere came into focus.⁵² They were also the most emotionally-resonant junctures of the journey, capturing travelers' colorful reactions upon finally arriving to the fabled city, their long-awaited destination. In these transitory moments, the aesthetic and the affective most fiercely collided in writers' narratives and imaginations, producing a unique, multisensorial representation of the landscape presented before them. Calderón de la Barca's eloquent soliloquy in an 1839 letter, written early on in her two-year Mexican residency, fittingly demonstrates the ways in which different observational tendencies, rooted in visual, emotional, and cultural ways of knowing the landscape, coalesced in the narration of a space:

But at length we arrived at the heights looking down upon the great valley, celebrated in all parts of the world, with its frame-work of everlasting mountains, its snow-crowned volcanoes, great

⁵⁰ Alfred Ronald Conkling, *Appletons' Guide to Mexico, Including a Chapter on Guatemala, and a Complete English-Spanish Vocabulary* (New York: D. Appleton and Company, 1884), 31; Shepard, *The Land of the Aztecs*, 50.

⁵¹ For more on the use of this term in nineteenth-century travel writing more broadly, see Nigel Leask, "The Ghost in Chapultepec": Fanny Calderón de la Barca, William Prescott and Nineteenth-Century Mexican Travel Accounts," in *Voyages and Visions: Towards a Cultural History of Travel*, ed. Jás Elsner and Joan-Pau Rubiés (London, UK: Reaktion Books, 1999), 197.

⁵² Although some, like German merchant Carl Christian Becher, on an explorative visit to the city in the 1830s, wrote in a letter dated January 21, 1832, that he could better appreciate the views from the bottom of the valley than from above. See Carl Christian Becher, *Cartas sobre México: La República Mexicana durante los años Decisivos de 1832 y 1933* [1843], trans. Juan A. Ortega y Medina (México, DF: Universidad Nacional Autónoma de México, 1959), 78.

lakes, and fertile plains, all surrounding the favored city of Montezuma, the proudest boast of his conqueror, once of Spain's many diadems the brightest. But the day had overcast, nor is this the most favorable road for entering Mexico. The innumerable spires of the distant city were faintly seen. The volcanoes were enveloped in clouds, all but their snowy summits, which seemed like marble domes towering into the sky. But as we strained our eyes to look into the valley, it all appeared to me rather like a vision of the Past, than the actual, breathing Present. The curtain of Time seemed to roll back, and to discover to us the great panorama that burst upon the eye of Cortes when he first looked down upon the table-land...The city of Tenochtitlan, standing in the midst of the five great lakes...what scenes of wonder and of beauty, to burst upon the eyes of these wayfaring men!⁵³

Owing to the cloudy conditions and the less-than-optimal route taken to reach the capital, what crystallized out of Calderón de la Barca's aerial gaze was an unusually compromised and fairly impressionistic view of the city, much unlike the more comprehensive vista over which the later visitor Brantz Mayer rejoiced. Air did not facilitate a clear view of the landscape in this instance. Squinting her eyes, however, she managed to trace the contours of only the tallest of buildings, the rest wrapped in an opaque film of atmosphere. Yet she continued to gaze, remarking that she felt as if she was seeing through the eyes of the "king-loving, God-fearing conqueror" himself just over three-hundred years ago.⁵⁴ Although Mexico was on the verge of entering its second decade as a young republic at the time of her entry into the country—its newly achieved independence was indeed the primary factor that brought many to the country in the first place—the city that Calderón de la Barca saw was distinctly colonial. Projecting a Cortesian gaze onto the nineteenth-century, she presented a rather palimpsestic narrative portrayal of the city, one culled from a mix of imagination and a turbid sky. Veiled by a blanket of clouds, Calderón de la Barca substituted her own view of the city, one born out of her familiarity with the city's history and built-up excitement while en route.

Other initial glances of the valley, such as Englishman William Bullock's, revealed that gazing was not a one-way diffusion of expectations imparted onto the Mexican capital by the viewer as Calderón de la Barca's portrait of the city suggests. Indeed, onlookers wielded the pen and had narrative authority over the landscape, but neither were they completely unaffected by the sights. Moreover, in some cases, air did not facilitate gazing; it precluded it. In other cases, gazes were not savored; instead, they were

⁵³ Calderón de la Barca, *Life in Mexico*, 73–74.

⁵⁴ Calderón de la Barca, *Life in Mexico*, 73.

hurried. Bullock, who set out for a six-month tour of the capital in 1822, found that a quick glimpse could recondition his perception of the city. He made note in his journal that:

Nothing around gives any idea of the magnificent city to which you are approaching; all is dreary silence and miserable solitude. And can this, I thought to myself, be Mexico?—have I then for such a place left my home and all that is dear to me, whilst ‘half the world intervenes between me’ and the comforts of England? What have I gained in exchange! ...So great was my disappointment, that I could scarcely bring myself to believe that I was in the capital of New Spain...a few minutes more, however, brought us into the city, and whatever I had seen of regularity and largeness of streets, size and grandeur of churches and houses, was here surpassed, and I felt repaid for all the dangers and troubles I had undergone.⁵⁵

Both circumstances were marred by external factors—Calderón de la Barca’s run-in with bad weather and Bullock’s distressing journey—that affected the way these travelers wrote about the city upon first glance. In situations such as these, wherein viewers found themselves unable to rely on the clear air to reveal the city to them and on aesthetic analysis alone, embodied observation complemented a predetermined, culturally-forged notion of what Mexico City *should* look like. Although ample visual detail gave verisimilitude to narrative reconstructions of the city, in the absence of a clear view, other ways of knowing shed light on the power of the full-bodied gaze. In Bullock’s case, only a cursory sighting of the city is made available to the reader, yet it is possible to deduce the beauty of the view based on the emotional impact it made on him. That a passing view could offer not only consolation, but restitution, for a burdensome trip thus spoke in ways that a simple visual analysis could not.

When gazers looked—whether in the morning, when the air was fresh, or upon their first arrival to the city—was as crucial as the locations from which they took in the view. Elevated heights allowed access to a panoramic view of the valley, where the enveloping atmosphere could help onlookers gain a more comprehensive and corporeal knowledge of the city and its physical features. Higher altitudes afforded more affective and intimate interactions with a raw form of nature, prompting eyewitnesses to notice often neglected aspects of its landscape, such as the sky, cloud patterns, wind, and temperature. As one early-nineteenth-century commentator claimed in his quick sketch of the city, “Approached by the

⁵⁵ Bullock, *Six Months’ Residence*, 123–124. Scholars consider Bullock one of the first English travelers to independent Mexico and his life has garnered much interest. On his various pursuits in Mexico, see Michael P. Costeloe, “William Bullock and the Mexican Connection,” *Mexican Studies/Estudios Mexicanos* 22, no. 2 (Summer 2006): 275–309.

great road from Vera Cruz [*sic*], the appearance of the city is not particularly striking; but, viewed from an elevation in the interior, the...luxuriant appearance of the surrounding valley...form[s] a scene magnificent and beautiful beyond description.”⁵⁶ For José Margati, who accompanied a cohort of twenty-five railroad investors to Mexico on the newly completed Mexican Central Railroad in 1884, the distant view of the valley drove him to ponder the immersive qualities of its landscape.⁵⁷ “As the train passed down into the famous valley of Mexico,” he began, “the farms or plantations increased in number; the country grew more thickly populated; the purple mountains, which bound the valley of Mexico, shut in the horizon; and over all swelled the blue vault of the everlasting firmament.”⁵⁸ Although Mexico City was itself “7,500 feet above the level of the sea, and nearly that number of feet closer to the stars,” many believed that seeking out higher ground unlocked access to air of the purest variety. The considerably drier upper atmosphere and the rarified quality of the air at altitudinous locations yielded more intense displays of atmospheric optical phenomena—the clouds were less obstructive, skies were of a more brilliant blue, the sun’s rays more concentrated, and “...you seem to be able to touch the stars.”⁵⁹ As a result, such skylscapes appeared celestial, “as if belonging to the supernatural world, yet tempered with the tenderness of earthly beauty,” as Mary Blake ruminated in her diary while standing atop the hill of Chapultepec for the first time.⁶⁰ From these vantage points, the viewing experience itself transcended the aesthetic and entered into the realm of the spiritual. Mountain summits, for instance, took travelers “to the very gates of heaven,” the “very battle-field of the aerial elements,” and travelers thus envisioned themselves as being “nearer [to] the heavens” while visiting or living in Mexico City.⁶¹ Indeed, traveling men and women strategically positioned their bodies on top of lofty platforms and built structures so as

⁵⁶ Robert Burford and John Burford, *Description of a view of the city of Mexico, and surrounding country: now exhibiting in the Panorama, Leicester-Square; painted by the proprietors, J. and R. Burford, from drawings taken in the summer of 1823, brought to this country by Mr. W. Bullock* (London: J. and C. Adlard, Bartholomew Close, 1826), 6.

⁵⁷ Cultural geographer Derek McCormack uses the concept of “envelopment,” to refer to the immersive qualities of an environment. According to McCormack, envelopment is “[a] condition from the point of view of the body...of being immersed within an atmosphere. Being enveloped,” he writes, “is a condition that can be sensed, although it is not always.” Furthermore, he states that envelopment is “always partial, insofar that the atmosphere is never fully disclosed to something immersed in that atmosphere—hence its allure.” McCormack, *Atmospheric Things*, 4.

⁵⁸ Margati, *A trip to the city of Mexico*, 43.

⁵⁹ Mayer, *Mexico As It Was*, 46.

⁶⁰ Blake, *Mexico, Picturesque*, 75.

⁶¹ Ober, *Travels in Mexico*, 393, 235; Blake, *Mexico, Picturesque*, 75.

to curate a more fruitful and inclusive aerial view. Sightseeing, or gazing as part of a tourist experience, was an activity conducive to personal observation as well as the primary means through which gazers developed and honed their visual acuity.

Mexico City proper laid claim to two popular lookout points: the “castle-crowned hill of Chapultepec,” the official residence of a late-eighteenth-century viceroy at the time of its construction in 1785 and of Emperor Maximilian and his wife Carlotta in the 1860s, as well as a military academy in the 1840s and astronomical observatory by the last third of the nineteenth century; and the Metropolitan Cathedral, built on the ruins of the Templo Mayor of Tenochtitlán.⁶² Of these two locations, German correspondent and late-nineteenth-century visitor to Mexico Emil Riedel maintained that “[t]here can surely be no richer and more varied spectacle, than that, which offers the Valley of Mexico, looking around from one of the towers of the Cathedral or from the top of the hill of Chapultepec, on a beautiful Spring morning, when the heavens are clear and of that turquoise blue, which is so peculiar to the dry and thin atmosphere of high mountains.”⁶³ Myriad roofs and balconies at undisclosed locations around the city facilitated gazing, but these settings offered less prolific vistas than Chapultepec Castle or the Metropolitan Cathedral. Outside of the heart of the city, mountaintops and slopes, including Popocatepetl; Iztaccíhuatl; and the legendary Tepeyac Hill, the site at which the Virgin of Guadalupe appeared to an unsuspecting Cuauhtlatoatzin (later canonized Juan Diego) in 1531, supplied truly atmospheric perspectives with only a minimal view of the city itself. Yet each site was worthy of a visit because, as Riedel clarified, “[t]he view changes as often as you alter the POINT OF OBSERVATION. [Viewers] must at least see it once from the stately Cathedral, once from the romantic Castle of Chapultepec and once more from the sacred hill of Tepeyac.”⁶⁴

⁶² Mayer, *Mexico As It Was*, 46.

⁶³ Emil Riedel, *Practical Guide of the City and Valley of Mexico with Excursions to Toluca, Tula, Pachuca, Puebla, Cuernavaca, etc, and Two Maps* (México: I. Epstein, 1892), 117.

⁶⁴ Riedel also enumerated the Cemetery of Dolores, the Hacienda de la Castañeda, the Cerro de la Estrella, the Xico crater, Peñon de los Baños, Texcotzingo, and Teotihuacan as additional noteworthy outlooks. Riedel, *Practical Guide*, 118. [Original capital letters]

Taken as a whole, the corpus of nineteenth-century Mexican travel writings examined in this chapter is marked by a lack of consensus regarding which location touted the finest view of the city and its environs. Each overlook produced wonderful sights in the grand scheme of things—indeed, Riedel argued that that valley itself “represents a PANORAMA”—but, as many writers either desired or anticipated that their accounts would serve an educational purpose, they considered it necessary to evaluate them for their readers.⁶⁵ Making such decisions and committing them to paper, however, proved to be more elaborate of a process than simply choosing a prized site. Authors deliberated over their choices, basing their atmospheric assessments on a number of factors, including the opinions of past visitors, the degree to which a location offered a proper panoramic vista, and the unshakeable impression of a first view. Riedel, for example, determined that Prussian naturalist and explorer Alexander von Humboldt was an exceptionally reputable source when he emphatically explained that “[t]he **Ascent** of the **Towers** of the **Cathedral** offers ‘one of the FINEST VIEWS in the world’, which even charmed world-wanderers such as Humboldt.” Howard Conkling also wrote fondly of the “superb panoramic view” from the cathedral (**Figure 1.2**), singling out the eastern tower because it “gives the observer an accurate conception of the various districts and localities in the City of Mexico.”⁶⁶ Writers looking out from Chapultepec (**Figure 1.3**) appeared to confirm these opinions when they noted that the “gigantic towers of the magnificent cathedral seem[ed] to lose themselves in the clouds.”⁶⁷

⁶⁵ Riedel, *Practical Guide*, 118. [Original capital letters]

⁶⁶ Conkling, *Mexico and the Mexicans*, 81–82.

⁶⁷ Niceto de Zamacois, “El Valle de México, Tomado desde las alturas de Chapultepec [*sic*],” in *México y sus alrededores*, 29.



Figure 1.2: Pleasant Vistas from the Towers of the Metropolitan Cathedral. Abel Briquet, *Vistas Mexicanas. Mexico. La Catedral*, 1860s–1880s, albumen silver print, 23.2 x 16.3 cm (The J. Paul Getty Museum, Los Angeles). Digital image courtesy of the Getty's Open Content Program.



Figure 1.3: Panorama from the Metropolitan Cathedral, Partial View of the Zócalo Foregrounded. Julio Michaud & Sons, *Panorama de Mexico de Sur*, 1860s, albumen silver print, size unknown (The J. Paul Getty Museum, Los Angeles). Digital image courtesy of the Getty's Open Content Program.

For its part, the entirety of Chapultepec was a striking scene (**Figure 1.4**): a castle upon a hill, a “solid mass of rock nearly two hundred feet higher than the surrounding country,” blanketed by a dense forest.⁶⁸ Tourists’ renditions of the view from atop the palace were thus colored by the experience of walking through the “magnificent cedars and cypresses, from every branch of which hang suspended delicate draperies of a soft, silvery-grey moss,” and the winding paths of leading to the “high, rocky eminence” on which the castle sits.⁶⁹

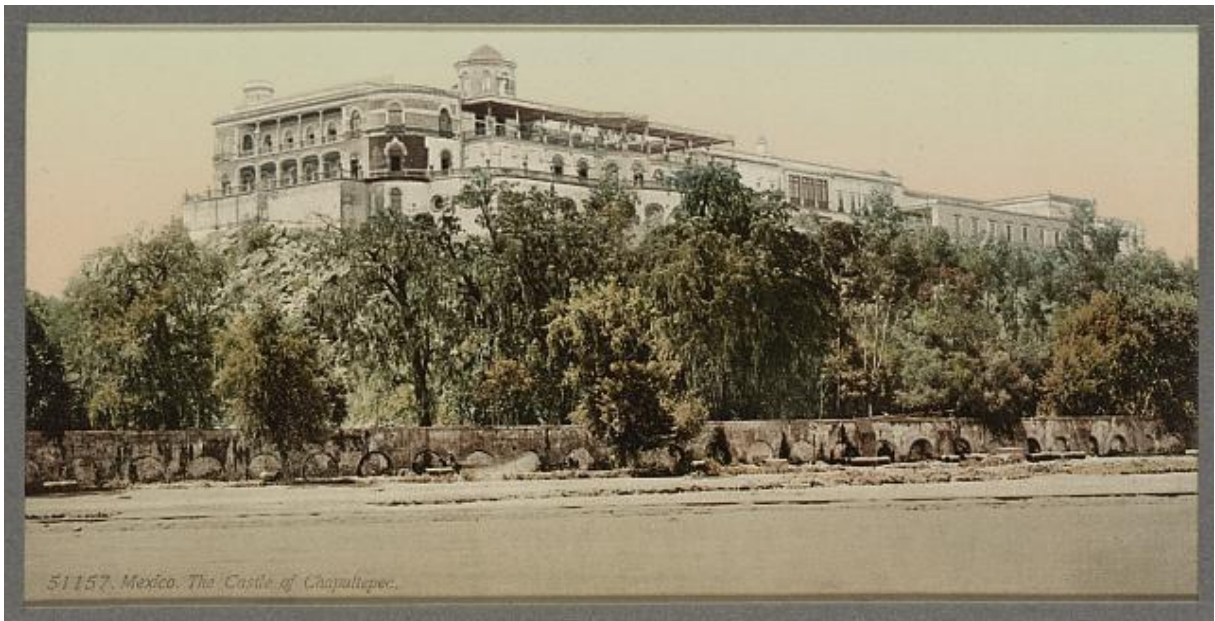


Figure 1.4: The Aerial Castle, the Mexican Sky. William Henry Jackson, The Detroit Publishing Co., *Mexico, The Castle of Chapultepec*, ca. 1884, photochromic print, 3.5 x 7 in (Library of Congress Prints and Photographs Division, Washington DC).

For Mary Blake, the first sight of the valley from Chapultepec was particularly memorable, and she wished for others to share in her emotional experience. She instructed her audience to “[stand] on the terrace [of Chapultepec castle],” where “one looks for the first time across the Valley of Mexico. In the natural order, there is nothing more wonderful than this scene for loveliness in the wide world,—nothing

⁶⁸ Marie Robinson Wright, *Picturesque Mexico* (Philadelphia: J.B. Lippincott Company, 1897), 84.

⁶⁹ Winifred Mary March-Phillipps-de Lise (Lady Howard of Glossop), *Journal of a tour in the United States, Canada, and Mexico* (London: Sampson Low, Marston & Company, 1897), 138.

more calculated to intoxicate the soul with the simple glory of living, since earth still holds such beauty for eyes of man.” (Figures 1.5 and 1.6) Blake was not alone in her appreciation of the view from the gardens of Chapultepec. Many others affirmed that Chapultepec was a most utilitarian location from which to gaze because the “aerial castle,” as dubbed by Marcos Arróniz in the 1850s, provided an “embracing” view, with comprehensive coverage of “the city and the valley of Mexico, Popocatepetl and his bride Iztaccihuatl [*sic*], and the Paseo de la Reforma, a boulevard two miles long from Chapultepec [*sic*] to the city...” all in one.⁷⁰ Thomas Price also argued that, “...there is no place in Mexico to compare with [Chapultepec] in regard to the natural beauty and historic interest,” and days later, on a second visit to the castle, he added that “the view from Chapultepec [*is*] beyond question the finest we have had of the Valley of Mexico.”⁷¹ The enterprising Marie Robinson Wright, in her lengthy 1897 study of the country, researched and written with the support of the Mexican government, also advised visitors to make the hike up to the castle, noting that “[f]rom the terrace that runs around the castle the view forms the most magnificent panorama that can be imagined. The whole valley of Mexico lies stretched out as in a map...with its glorious enclosure of lofty mountains, off whose giant sides great volumes of misty clouds are ever rolling, and with its turquoise sky forever smiling on the scene, the whole landscape, as viewed from this height, is one of unparalleled beauty.”⁷² Even one of the first heads of the Royal and Pontifical University of Mexico, Francisco Cervantes de Salazar, often mentioned Chapultepec hill in his 1554 published lectures because it imparted a “clear and unobstructed view of the environs of the City of Mexico.”⁷³

⁷⁰ Riedel, *Practical Guide*, 176. [Emphasis in original]; Arróniz, *Manual de viajero*, 220; Blake, *Mexico, Picturesque*, 74; Margati, *A trip to the city of Mexico*, 49–50.

⁷¹ Price, *Brief Notes*, 59, 69.

⁷² Robinson Wright, *Picturesque Mexico*, 86.

⁷³ Though the castle was not built until the 1780s, the hill on which it would stand was an important pre-Columbian cultural landmark. Robinson Wright, *Picturesque Mexico*, 84; Cervantes de Salazar, *Life in the Imperial and Loyal City of Mexico*, 52, 67.



Figure 1.5: Taking in the Sights from Chapultepec Terrace. Creator unknown, *Terrace-Chapultepec Castle*, 1902, photographic print, 13 x 10 cm (DeGolyer Library, Southern Methodist University).

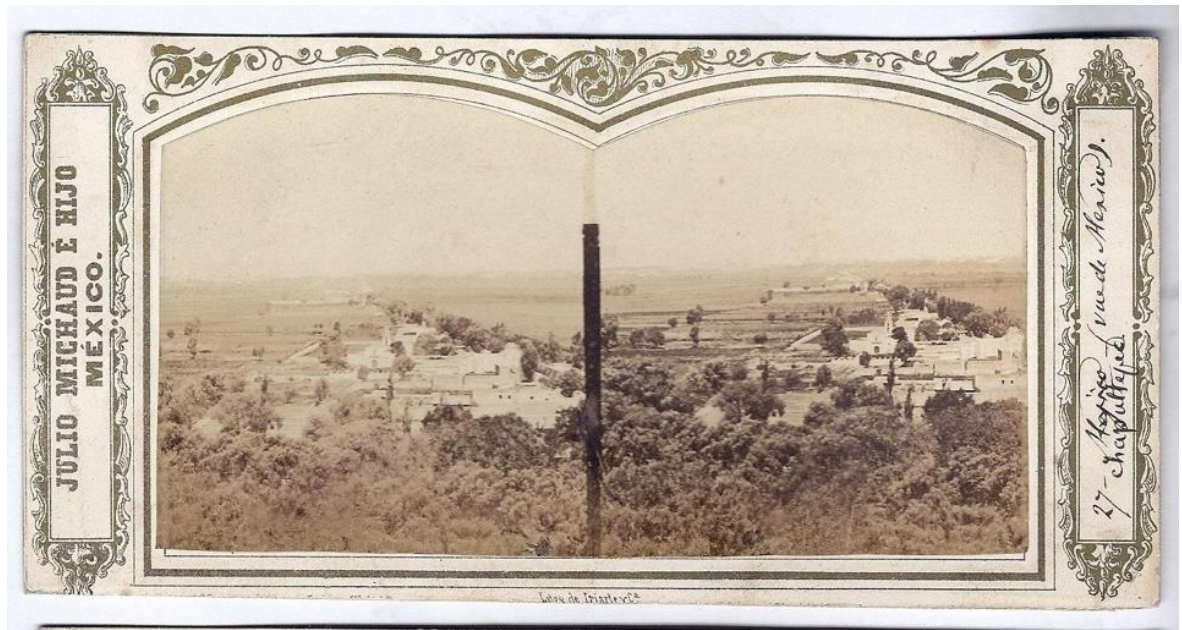


Figure 1.6: View from Chapultepec. Julio Michaud & Sons, 27–*Vue de Mexico de Chapultepec*, 1860, albumen silver print, size unknown (Wikimedia Commons).

Despite frequent references to the limitlessness of the valley, writers gazing from Chapultepec and the Metropolitan Cathedral portrayed its distinguishing natural features as if they were within easy reach. The “great lakes,” according to James Frederick Elton, an officer of the Royal Marines who toured Mexico during the French occupation, appeared “at one’s feet” from Chapultepec.⁷⁴ This phenomenon, as naturalist Frederick Ober surmised, had to do with none other than the city’s air, which “is so transparent that objects at a distance seem close at hand.” “Many writers,” he added, “have noticed the deceptive appearance of the hills, which can be seen at the termination of every street as though within an hour’s walk, when in reality twenty miles away; and the two great volcanoes, though seemingly within cannon-shot, are all of fifty miles distant.”⁷⁵ Travelers also incorporated this technique into their sketches and illustrations, forgoing the more visually realistic aerial perspective perfected by well-known nineteenth-century Mexican artists such as José María Velasco and Casimiro Castro, who recreated the illusion of depth and distance in their oil paintings and lithographic prints by increasing the lightness,

⁷⁴ James Elton Frederick, *With the French in Mexico* (London: Chapman and Hall, 1867), 37.

⁷⁵ Ober, *Travels in Mexico*, 248.

softening the sharpness, and reducing the saturation of receding objects. In contrast to such works as Velasco's 1875 *Valle de México desde el cerro de Santa Isabel* or Castro's 1855 *La Alameda de México, Tomada en Globo* (Figure 1.7), the hurried ink landscape compositions accompanying the textual body of travel writings, sacrificed depth but not detail.



Figure 1.7: Aerial Perspective in Nineteenth-Century Mexican Art. Casimiro Castro, *La Ciudad de México, Tomada en globo por el Noroeste* (The City of Mexico, Taken from a balloon from the Northeast) in *México y sus alrededores* (México: Imprenta Litográfica de J. Decaen, 1869), 1855, chromolithographic still image, 9 x 14 in (The New York Public Library Digital Collections).

Taking such artistic license, as Ober himself did in his sketch of a Chapultepec view (Figure 1.8), which depicts a dramatic foreshortening of Popocatepetl and Iztaccíhuatl, was a way for travel writers to convey the immense variability of the city's natural features, packaging up its elemental attraction into one neatly framed panoramic image. It also allowed authors to artistically, rather than textually, highlight the special qualities of the atmosphere—its transparency, which allowed gazers to come away from their sightseeing adventures with detailed images of even the most peripheral objects; the radiant blend of pastel shades that the sky took upon sunrise or sunset, which travelers often noted produced a mood-altering effect; its

sheer vastness, measured by the space the sky occupied in visual sources, which communicated an almost-heavenly evanescence. Finally, it helped readers visualize grand claims, like that made by merchant Carl Christian Becher in an 1832 letter, wherein he professed that “The air is so pure and transparent [in the city] that, at a great distance, one can clearly recognize the trunk of each of the mountain trees.”⁷⁶

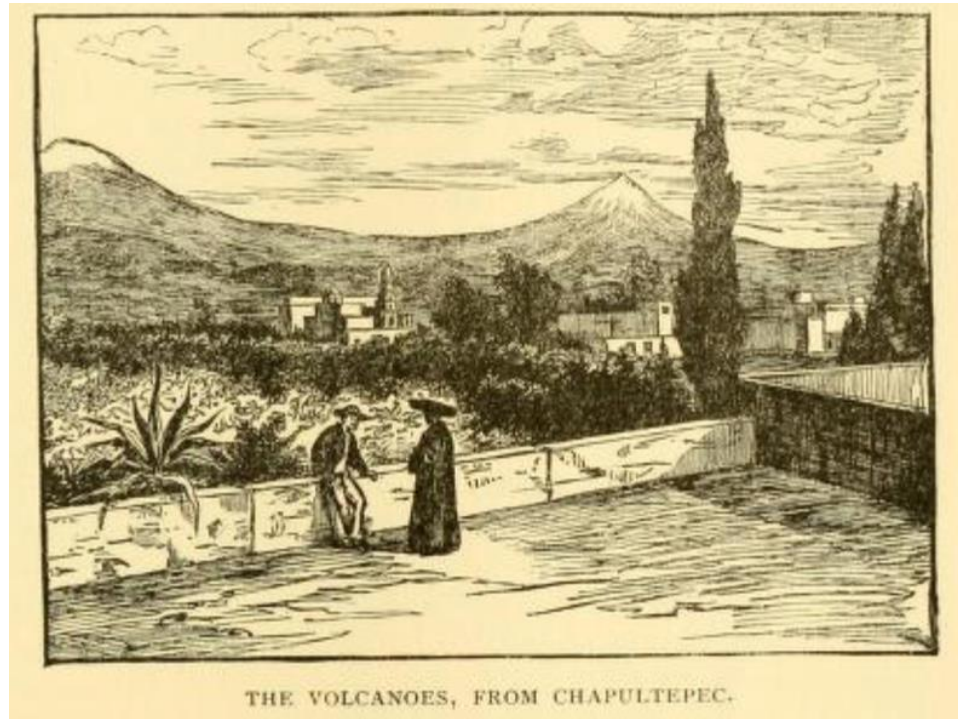


Figure 1.8. Sketch of the Environs of Mexico City. Frederick Albion Ober, *The Volcanoes, from Chapultepec*, in *Travels in Mexico and Life among the Mexicans* (San Francisco: J. Dewing and Co., 1884), 387, ink on paper, size unknown.

Key components in nearly every panorama of the valley, whether naturalistically portrayed or exaggerated, the iconic volcanoes were not visited by all. Yet Popocatepetl and Iztaccíhual were key viewing sites, especially during colonial-era expeditions to the city (**Figure 1.9**). These landmarks served Spanish explorers in multiple ways. The far-reaching perspective of the aerial gaze from volcanic ridges featured prominently in colonial-era surveys of the uncharted land of México-Tenochtitlán. In these accounts, viewers derived both pleasure and strategic information from gazing. In his history of the Spanish conquest, for instance, Bernal Díaz del Castillo, a soldier in Cortés’s army, hinted at the utility of

⁷⁶ Becher, *Cartas sobre México*, 80.

the aerial gaze as an indispensable information gathering technique in their exploration of an unknown landscape. Feeling “bound to dwell on” Captain Diego de Ordás’s intrigue with an active, sputtering Popocateptel, Díaz detailed a zealous Ordás’s climb, along with two Indigenous chiefs, to the mouth of the smoking volcano. “From this summit,” Díaz related, “could be seen the great city of Mexico, and the whole of the lake, and all the towns which were built in it...Ordás was delighted and astonished at the sight of Mexico...after having a good look at the view he returned to Tlaxcala and...looked on it as a deed of great daring.”⁷⁷ Scenic vistas like the one Díaz described and Ordás encountered made the city appear ever more attractive because they transformed the vastness of the valley into something that could be easily digestible by the eye and mind. Seeing the Valley of Mexico through a panoramic lens had a profound effect on the way colonial authors wrote about the city. It gave them a deeper understanding of its geography and layout and allowed them to read the landscape as part of the wider project of colonial expansionism. Indeed, nineteenth-century Mexican geographer Antonio García Cubas acknowledged the power of the aerial gaze when wrote in his descriptive handbook of Mexico that the panoramic view of the valley represented the “dreamed and desired wealth” that Cortés sought, motivating him to advance deeper into Tenochtitlán.⁷⁸

⁷⁷ Bernal Díaz del Castillo, *The True History of the Conquest of New Spain by Bernal Díaz del Castillo, One of Its Conquerors. From the only exact copy made of the Original Manuscript* [1632], trans. Alfred Percival Maudslay (London: Bedford Press, 1908), 287.

⁷⁸ Antonio García Cubas, *Cuadro geográfico, estadístico, descriptivo e histórico de los Estados Unidos Mexicanos* (México: Oficina Tipográfica de la Secretaría de Fomento, 1885), 381.



Figure 1.9: Popocatépetl and Iztaccíhuatl, Distant Viewing Sites. William Henry Jackson, The Detroit Publishing Co., *Ropocatapetl [sic] and Iztachihuatl [sic] from the cathedral*, ~1880–1887, dry plate negative, 5 x 8 in (Library of Congress Prints and Photographs Division, Washington DC).

Attempting the strenuous trek to the volcanic summits or wading through the crowds stationed at Chapultepec Castle or the Metropolitan Cathedral were not the only means through which travelers could acquire an aerial perspective. Despite confessing that “...no place I ever saw affords so many interesting points for a panoramic view...” than Mexico City, William Bullock preferred to gaze from his rooftop. “The roofs are all nearly flat, and bricked,” he wrote “many of them are covered with flowers, affording a pleasant place of resort in a fine evening, as the prospect is delightful, with the air refreshing and uncontaminated by smoke.”⁷⁹ Admiring the view while lounging on the azoteas, an activity to which Frederick Ober was also privy, was an altogether more immersive experience than that offered by the towering castle, cathedral, or mountaintops. At these tourist spots, spectators stood upon such structures and looked out at the valley or down upon urbanity, keenly observing from elevations that emphasized

⁷⁹ Bullock, *Six Months' Residence*, 128.

their bodily separation from the rest of the city. “Seated upon the azotea,” however, the viewer *felt* the “cool breezes playing about you, the hum of busy life in the plaza and the streets coming up from below, and...the soft moonlight flooding the sea of roofs on every side...”⁸⁰

To be sure, vistas observed from azoteas were narrower in scope than those from their loftier counterparts, which were better adapted for sightseeing. A rooftop, the highest peak of a home or an apartment, measured on average between forty-five to sixty feet off the ground, according to Bullock—a far cry from the cathedral, whose bell towers reached 220 feet.⁸¹ Rooftop views were also less glamorous as they were constrained by the particular location and orientation of the building. Yet the embodied atmospheric narrations penned from these more quotidian observation decks were similarly rich with insight about the city’s landscape and atmosphere. Second- and third-floor porches and courtyards embellished with “sweet-scented” foliage, for example, piqued the senses. Winifred Mary, Lady Howard of Glossop (March-Phillipps-de Lisle), who arrived to the city shortly after dusk had fallen one mid-November evening in 1895, could not see the sights, but she could smell the air “fragrant with flowers” on the “loveliest patio” near her hotel room.⁸² Perplexed visitors from Europe also made references to the city’s clear skies, not by the features they could identify from afar or by the salubrious weather, but by the conspicuous absence of chimneys and, therefore, of smoke. “Owing to this species of ornament,” Bullock wrote while walking around his apartment balcony, “the city presents a far more beautiful appearance than those of Europe, whose red-tiled and deformed roofs, and shapeless stacks of chimnies [*sic*], are the principal features in the prospect.”⁸³ Aerial gazes were indeed of a different, more authentic

⁸⁰ Ober, *Travels in Mexico*, 224.

⁸¹ Bullock writes that “Most of the houses are of the same height, generally three stories high, highly decorated, and ornamented with two rows of balconies of wrought iron...The stories are very lofty, the apartments from fifteen to twenty feet high.” Bullock, *Six Months’ Residence*, 124–125.

⁸² March-Phillipps-de Lise, *Journal of a tour*, 128.

⁸³ Bullock, *Six Months’ Residence*, 128; J. H. Bates and William Bishop also commented, independent of one another, during their mid-winter visits that there was “No fire in the hotel, save in the kitchen, nor any way of having one, nor in any house in the city, I am told, and scarcely a chimney” and “no provision for heating during the winter.” See Bates, *Notes of a tour*, 47 and Bishop, *Old Mexico*, 55, respectively; according to the unidentified author of *Through the Land of the Aztecs*, in contrast to the “few American families [who] have stoves in their rooms...I believe there is not a single open fireplace used in the whole city.” Gringo [pseud], *Through the Land of the Aztecs*, 18; Professor Alfred Oscar Coffin, who visited Mexico to learn Spanish in the late nineteenth century, even titled his 1898 378-page travel guidebook and history of Mexico, *A Land without Chimneys*, see Alfred Oscar Coffin, *A Land without Chimneys* (Cincinnati: The Editor Publishing Co., 1898). Travelers remained fazed into the twentieth century by

nature on rooftops than they were at sites increasingly frequented by tourists. Regardless, travelers still encountered the atmospheric elements at their places of leisure and centered it in their narrative descriptions of landscape, albeit in refined, more corporeal ways. Rather than dwelling on the valley's distinctive physical features, which confronted viewers at locations like the Metropolitan Cathedral or Chapultepec Castle, the latter of which was by 1909 recognized as "one of the world's most famous sights," they picked up on smells, sounds, and the missing "forest of smoking chimneys," using these aspects to comment on the health and beauty of the city.⁸⁴

As the journalistic, informational travel narrative grew into a widely read literary genre over the course of the nineteenth century, portions of the descriptive content that populated these accounts began conforming to and reproducing a cultural script. The magnificence of Mexico's natural features, as multiple works intimated, was representative of the broader grandeur of the nation and gave outsiders a sense for all that Mexico had to offer. Visitors cited its temperate climate, clean air, and cloudless skies, for example, as factors that supported soil fertility and nurtured agricultural productivity, but they also used these terms to refer to an overall atmosphere of abundance.⁸⁵ No doubt, opinions of Mexico and its capital that were published in the early decades of the nineteenth century had a demonstrable impact on those writing closer to the turn of the century. For example, Californian author Olive Percival, writing in 1901, "...knew that [her] first view of all those dazzling, enrapturing landscapes would be under the bluest-blue sky and in a blinding white sunshine."⁸⁶ Authors left clues throughout their narratives that spoke to their knowledge of previous published accounts. Some, like Riedel in his 1892 *Practical Guide of the City and Valley of Mexico*, demonstrated an awareness of the works predating his own when he mentioned the "[c]elebrated world-wanderers, who have seen the most interesting landscapes of both

Mexico City's lack of chimneys, as William E. Carson's 1909 account shows: "Strange to the American eye is the lack of chimneys...which is due to the fact that charcoal is generally used in Mexico for cooking and heating. Very little coal is found in the country, and as most of that used is imported from abroad, it is rather an expensive luxury." See William E. Carson, *Mexico: The Wonderland of the South* [1909], 2nd ed. (New York: The MacMillan Company, 1914), 59.

⁸⁴ International Bureau of the American Republics, "Municipal Organizations in Latin America, Mexico City," *Monthly Bulletin of the International Bureau of American Republics* 28 (Washington, DC: Government Printing Office, February 1909), 220; Riedel, *Practical Guide*, 176.

⁸⁵ Shepard, *The Land of the Aztecs*, 56.

⁸⁶ Olive Percival, *Mexico City: An Idler's Notebook* (Chicago: Herbert S. Stone and Company, 1901), 5.

hemispheres, [and] have praised the delightful scenery of the Valley of Mexico as unsurpassed in beauty.”⁸⁷ This shared knowledge of early-nineteenth-century travel literature generated not only shared expectations for the tourist’s viewing experience, but also led to the common practice of lifting or closely paraphrasing sections from extant publications. Appropriations of narratives were quite obvious when it came to the portrayal of landscape, especially one as memorable and distinguishable as the Valley of Mexico’s.

Particularly in their descriptions of the atmosphere, many accounts bore a resemblance to, and at times cited, Humboldt’s estimations in his famed 1811 *Political Essay of the Kingdom of New Spain*, a compilation of data on Mexico’s geographic, geologic, and climatic conditions resulting from a larger five-year expedition across Spanish America. Although his contemporaries understood *Political Essay* as a product of “objective” scientific study, Humboldt often combined instrumental observation with deeply embodied knowledge of what the air felt like. Even as Humboldt read the city’s atmosphere quantitatively, noting in one instance that “The observer finds himself, in the city of Mexico, in a stratum of air, whose barometrical pressure is only 585 millimeters” (or nearly twenty-three inches as disclosed in a footnote), he also gauged its quality by commenting on the crisp “contours of [volcanic] summits, [which] appear so much the more marked, as the air through which the eye receives the rays is more rare and transparent.” “The show,” he continued, “is of a most extraordinary brilliancy, particularly when it descends from a sky of which the blue is always deeper than that of the sky which we see from our plains of the temperate zone.”⁸⁸ Humboldt’s celebrated and rich observations had some excursionists, such as New York businessman Howard Conkling, questioning the usefulness of subsequent appraisals. Pointing to the centrality of the “illustrious Humboldt” in nineteenth-century knowledge production, he proposed in 1883 that “It may indeed be doubted whether any succeeding writer has added anything of value to his discoveries and observations.”⁸⁹

⁸⁷ Riedel, *Practical Guide*, 117.

⁸⁸ Humboldt, *Political Essay*, 121.

⁸⁹ Conkling, *Mexico and the Mexicans*, 67.

As the above excerpts reveal, the late-nineteenth-century authors' pilfering of qualitative descriptors put forth by Humboldt and other early-nineteenth-century writers resulted in the memorialization of a landscape. Mexico City's sky was customarily hailed as "brilliant," frequently defined by its stunning "turquoise" or "azure" color, or recognized for its "clarity" and "shine," despite the plethora of chronicled, daily, disruptive meteorological phenomena that temporarily clouded its translucence or dimmed its shimmer. For instance, J. H. Bates, traveling through Mexico with his wife, daughter, and niece in the late 1880s, expressed his disappointment about the way the dry season impacted the valley's atmosphere. One late-February morning, he noticed that the sky had turned "deep with a light dust," and was "easily stirred by the wind, so that the city is partly veiled by it."⁹⁰ In 1888, Francisco de Garay also recalled an "extraordinary" drought that afflicted the city in May of the decade prior, during which "the atmosphere was dusty and the haze was very dense; at night the sky looked white and the moon barely shone through...The whole lake was dry and covered with a thick layer of snow-white *tequesquite* which reflected the light in the haze of the sky that looked like a huge white vault."⁹¹ Emil Riedel, too, spoke in-depth of the "gigantic whirlwinds (*remolinos*) and the opaque clouds of dust which sometimes exclude the horizon, so that sun and moon are perceived dimly shining like blood-red discs."⁹² But paying attention to the atmosphere involved more than making simple mention to the radiance and aesthetic particularities of the skyscape. More original interpretations, as we will see, surfaced as historical actors attempted to express how the "unequally woven, flowery mantle" that envelopes and protects the Earth, made them feel.⁹³ In other words, narrators' explorations of atmospheric envelopment, what scholar Derek P. McCormack terms "the diffuse condition of potential

⁹⁰ Bates, *Notes of a tour*, 41, 49.

⁹¹ Tequesquite is a naturally occurring mineral salt found in the basin's salty lake waters, especially Texcoco. For more on tequesquite and its uses, see Andoni Garritz Ruiz and José Antonio Chamizo, *Del tequesquite al ADN. Algunas facetas de la química en México*, 4th ed. (México, DF: Fondo de Cultura Económica, 2010). The original, Spanish-language excerpt reads: Ese año, 1878, fue algo extraordinario por sus aguas en el Valle. La sequía se anunció con gran fetidez. En Mayo, la atmósfera estaba cargada de polvo y la calina era muy densa; de noche el cielo se veía blanco y la luna apenas se transparentaba...El Segundo día a las cinco de la tarde...*Todo el lago estaba seco* y cubierto de una gruesa capa de *tequesquite* blanco como el nieve, que reflejaba la luz en la calina del cielo que se veía como una inmensa bóveda blanca." See de Garay, *El Valle de México*, 91–92.

⁹² Riedel, *Practical Guide*, 154.

⁹³ Humboldt, *Cosmos*, 96.

palpability,” were more complex, and required of our interlocutors the simultaneous assessment of different “domains of experiment and experience,” including the bodily, the emotional, *and* atmospheric.⁹⁴

Deciphering the Aerial Gaze: A Cultural History of Agential Airs

This valley is both pleasing to the eye while at the same time it encourages the mind to contemplate and reflect.

Emil Riedel, *Practical Guide of the City and Valley of Mexico*, 1892

The human body is an exceptionally sensitive tool for sensing the imperceptible. The mind is both separate from this process *and* an essential complement in helping make sense of information derived somatically. In the context of nineteenth-century atmospheric knowledge, as the preceding section makes evident, vision was the main sense upon which most travelers relied to study and write about Mexico City’s landscape. Narrators waxed poetic about the aesthetic qualities of the air. Watchful eyes skillfully detected short- and long-term skyscape events, logging weather patterns, cloud coverage (or the lack thereof, as frequently seemed to be the case), sun movements, dust pollution, and the spectrum of colors projected across the sky. Gazing, the means through which our observers took in the sights, had soothing properties as well, and was thus a form of embodied interaction with nature’s most immaterial element. Equally as important was olfaction. Writers made references to smell largely to comment on the seemingly harmful stench emitted by the city’s various orifices. In some cases, smell even overpowered sight as the key sensing mechanism. According to the anonymous author of the 1892 travelogue *Through the Land of the Aztecs*, for example, “Mexicans say that they can tell the street they happen to be in blindfolded by its peculiar odors.”⁹⁵ Yet noses also sniffed out pleasing scents such as an “air delicious with balsam,” “fragrant with groves of palm and roses and blushing oleander,” or “redolent

⁹⁴ McCormack, *Atmospheric Things*, 19, 21.

⁹⁵ Gringo [pseud], *Through the Land of the Aztecs*, 18; Mexican National Railway Company, “The Mexican National Railway: Palmer-Sullivan Concession” (n.p., 1881), 19; March-Phillips-de Lise, *Journal of a tour*, 125.

of the scent of orange and lemon blossom.”⁹⁶ On certain occasions, smell betrayed that which the eye registered as an otherwise-pleasing and clean atmosphere, while other times, aromata enhanced the appeal of visually gratifying sights.

Though they were less common, audition and gustation added a level of nuance to descriptions of the city’s air. An air devoid of sound, or a “serene,” “silent air” signified calm weather, whereas a “sunny air, all musical with zephyrs’ sighs and birds that flung their joyous notes high up into the ever-cloudless skies,” as the well-traveled English operatic soprano Anna Bishop fittingly described, “seemed welcoming with its celestial chorus.”⁹⁷ In breathing it in or exhaling it out, travel writers also consumed the air, recording its distinct flavors through the modality of taste. A morning air was often identified as tasting delicious, and it was during the early hours or after a rain shower in particular that “Nature appear[ed] in all her glory, and the air [became] sweet and refreshing.”⁹⁸ Somatosensation was rarer still, as writers could not physically touch the air as they could the ground upon which they stood. Yet they still spoke of airs that felt “soft,” like a “perennial spring,” and of changes in temperature felt by the body.⁹⁹ Together, the senses helped render the invisible airs legible to the human body. Authors translated knowledge gleaned from these methods of observation by entwining them into their aesthetic judgments of the landscape. The bodily comfort—or discomfort as a few episodes demonstrated—engendered by the city’s airs was thus a fundamental component in the articulation of its all-encompassing and enigmatic effect.

Beyond their “life-giving” capacity, airs were agential; they acted on the body in tangible and intangible ways.¹⁰⁰ “Bad odors offend[ed] the nostrils,” while the valley’s signature dry air made tourists

⁹⁶ Ober, *Travels in Mexico*, 395.

⁹⁷ Blake, *Mexico: Picturesque*, 75; Arróniz, *Manual de viajero*, 221; Jesús Hermosa, *Manual de geografía y estadística de la República Mexicana* (Paris: Librería de Rosa, 1857), 26; Anna Bishop, *Travels of Anna Bishop in Mexico. 1849*. (Philadelphia: Charles Deal, 1852), 47.

⁹⁸ Gringo [pseud], *Through the Land of the Aztecs*, 17; Riedel, *Practical Guide*, 156–157.

⁹⁹ On more than a few occasions, Calderón de la Barca claimed that the air felt “soft,” see *Life in Mexico*, 81, 218; Bullock, *Six Months’ Residence*, 128.

¹⁰⁰ This argument is inspired by Casey Walsh’s recent study of mineral springs and bathing culture in central Mexico, which explores themes of agentiality and heterogeneity of a natural substance. See Walsh, *Virtuous Waters*, esp. chs. 2–5.

“liable to suffer from thirst and chapped lips on arriving to the valley of Mexico.”¹⁰¹ Travel writers issued myriad warnings about the city’s air, suggesting that behind the enchanting, aesthetic exterior of the sky, which mesmerized gazers with its clarity, there existed a host of invisible dangers that threatened the body of the first-time visitor. An 1884 guidebook cautioned that “[o]n first reaching Mexico, care should be taken to avoid exposure to the direct rays of the sun [because] headache and fever comes from a strong sun, until the tourist has been acclimated.” Consequently, the author recommended that “[s]olar hats should be worn in the summer season.”¹⁰² But chilly, night airs were also particularly “risky”: the “popular idea,” observed American news correspondent William E. Carson during his “fairly long residence” in Mexico, “is that unadulterated cold air entering the lungs is likely to cause pneumonia,” though the generally “excellent climate...particularly in the spring and summer months” had a curative effect on “people with weak lungs.”¹⁰³ One visitor maintained that he “...had proof of the accuracy of this opinion in the case of a gentleman who arrived in Mexico with a hectic flush and a ‘churchyard cough.’ After a residence of a year in the country, spending the summer in the city...he became another man and is now strong and healthy,” he reported.¹⁰⁴ Mexico City’s air could thus harm or heal human bodies, a conclusion that many travel writers came to upon first experiencing the confusing “giddines [*sic*] and flow of blood to the head...[that] arises from the rarefaction of the atmosphere,” a sensation that made Brantz Mayer and two other passengers feel “ill and uncomfortable the rest of the day.”¹⁰⁵

New arrivals’ sensitized bodies were exceptionally perceptive to the various effects of Mexico City’s high-altitude atmosphere. During an evening jaunt around the city, Carson wrote that he “...noticed a peculiar atmospheric quality which somehow reminded me of the high mountainous districts of Switzerland. I also felt a queer dizzy sensation in the head and a slight difficulty breathing,” he

¹⁰¹ Bishop, *Old Mexico*, 46; Conkling, *Appletons’ Guide*, 31; Robinson Wright, *Picturesque Mexico*, 82.

¹⁰² Conkling, *Appletons’ Guide*, 2.

¹⁰³ Carson was “astonished to find [some of the principal streets] so deserted,” noting that “There is a reason for this, and it is undoubtedly climate...The whole population are terrified of the night air, and thus it is that after eight o’clock Mexico City is almost a city of the dead...” See Carson, *Wonderland of the South*, 51; Gringo [pseud], *Through the Land of the Aztecs*, 18.

¹⁰⁴ Although, according to the author, the man’s regimen involved relocating for the winter to a “hacienda in a somewhat warmer part of the interior,” see Gringo [pseud], *Through the Land of the Aztecs*, 18.

¹⁰⁵ Mayer, *Mexico As It Was*, 37, fn. 2.

divulged. “Then I remembered I was in a region of **rarefied air**...it is owing to this high altitude that most visitors on their arrival experience a slight headache or shortness of breath, which, however, wears off in a day or two.”¹⁰⁶ For some, such as Carson and Mayer, altitude sickness was a momentary sensation, a sign of acclimatization. It therefore presented only a temporary affront to one’s health. However, others asserted that Mexico City’s thin air possessed mood-altering and behavior-changing properties and thus gave rise to more powerful bodily and emotional reactions. Some knew this strange phenomenon simply as *la altura*, and although connected to the general medical condition *anoxia*, a brain injury occasioned by a sudden loss of oxygen supply, certain travelers argued that this mysterious atmospheric effect was culturally-specific to Mexico. The altitude “is strictly Mexican in character and scope,” posited Herbert Cerwin, an American publicist and director of the radio division of Nelson Rockefeller’s Office of the Coordinator of Inter-American Affairs during the 1940s, “[i]t is as Mexican as tortillas and chili. Everyone suffers from it, or at least thinks he does.”¹⁰⁷ Other mountainous cities, such as Colorado Springs, Colorado, Santa Fe, New Mexico, Bogotá, Colombia, and La Paz, Bolivia, he reasoned, claimed similar elevation levels, but only in Mexico City “is the altitude used as an excuse for being late for an appointment, for not keeping one, for having to take a vacation, for having a hangover, for needing a *siesta*, for losing one’s appetite or for increasing it. Even marital difficulties are traced to it.”¹⁰⁸

¹⁰⁶ Carson, *Wonderland of the South*, 52. [Emphasis in original]; William Bishop reported that the altitude also affected animals: “The horses, for instance, though good and speedy, can only run short distances, and then...must be walked up and down until gradually cooled.” See Bishop, *Old Mexico*, 54; Howard Conkling advised travelers to “sojourn temporarily at a place of intermediate altitude, like Orizaba.” See Conkling, *Mexico and the Mexicans*, 69.

¹⁰⁷ Herbert Cerwin, *These Are the Mexicans* (New York: Reynal & Hitchcock, 1947), 165. Cerwin included a lengthy list cataloguing *la altura*’s effects. Some of the more unexpected include *la altura* causing a “diplomat’s fat wife” to overeat cake, Mexican drivers to “blow their horns constantly,” a store clerk to act out because he had not made a sale, a made to suddenly drop an expensive dish; and a business associate to arrive tardy to an important appointment. Yet Cerwin recalled choosing his penthouse apartment, where the altitude would have been more pronounced, adjacent to the central Avenida Reforma because of the “sweeping view of Mexico City and of the two volcanoes.” For more on Herbert Cerwin, including his life and professional activities in Mexico, see his autobiography, *In search of something: The memoirs of a public relations man* (Los Angeles: Sherbourne Press, 1966), quote on 218. More information on the Office of Inter-American Affairs can be found in the work of Gisela Cramer and Ursula Prutsch, “Nelson A. Rockefeller’s Office of Inter-American Affairs (1940–1946) and Record Group 229,” *Hispanic American Historical Review* 86, no. 4 (2006): 785–806.

¹⁰⁸ Even Mexicans, “who, though born in the altitude and having lived in it all their lives, nevertheless complain about *la altura*,” wrote a disgruntled Cerwin. See *These Are the Mexicans*, 164.

Travelers to Mexico City deployed their knowledge of the effects of *la altura* to communicate what they saw as a sophisticated insider's perspective of the city, one that, they charged, went further in locating the supposed "Mexican" character of the city than could the strictly aesthetic descriptions of its landscape, which had been parroted by travelers into overuse by the twentieth century. That volcanoes could be perpetually coated by snow was due to *la altura*; early gazers recognized as much. But, in the minds of those whose self-proclaimed familiarity extended beyond a "merely superficial acquaintance with Mexico," *la altura* also accounted for "why Mexicans eat heavy dinners in the middle of the day," and gave insight into "what makes Mexican drivers blow their horns constantly."¹⁰⁹ In this, air explained away elements of Mexicanness that struck the outsider eye as odd. This included the city's more attention-grabbing natural features, which travelers painted in a positive light, *and* the curious customs of its residents, which carried a distinct negative weight in their narrations. Though travelers sparingly entertained the possibility that their use of this knowledge to make sweeping assumptions about Mexican culture could reinforce their outsider positionality by revealing their underlying cultural assumptions, their writings nevertheless demonstrated the centrality of embodied environmental knowledge and, within this, the power of air in the articulation of the lived experience of the city.

Mexico City's air was inscribed in the bodies of its residents and visitors. Its thin air greeted first-timers to the city, casting its enervating spell on their unsuspecting constitutions. Yet it also generated a variety of affective responses as well, and was thus linked to travelers' emotions. For Fanny Calderón de la Barca, the Mexican air was a potent tonic, as it helped to dispel the "indescribable feeling of solitude," that she detected in "all houses in the environs of Mexico...[a] desolation, such as I never before experienced in the most lonely [*sic*] dwellings in other countries." However, she took care to emphasize this feeling was not "sad[ness]—the sky is too bright, and nature too smiling, and the air we inhale too pure for that."¹¹⁰ Traveling men and women also noticed the ways in which air led others to behave, employing such observations to throw light on the peculiarities of Mexican society. For example, Anna

¹⁰⁹ Carson, *Wonderland of the South*, v; Cerwin, *These Are the Mexicans*, 166.

¹¹⁰ Calderón de la Barca, *Life in Mexico*, 405.

Bishop observed that the, “From six till eight in the morning...the balmy Mexican breeze...excites the ladies [enjoying with much *gusto* the loveliness of the landscape]...to commit all sorts of oddities, such as riding on the right side of the horse, with skirts of the brevity of a common walking-dress, and generally without any bonnets, hats, or other head-covering whatever.”¹¹¹ Frederick Ober similarly isolated the air while postulating about Mexican society. “The brisk eclectic condition of the air,” he suggested, “may account for the animation of the people, both native and foreign residents, who are always stirring...and always cheerful.”¹¹² Travelers wrote about the air because they believed it was important for explaining the city’s natural beauty and, as Bishop and Ober’s remarks demonstrate, its daily life. They gazed at the sky, taking in Mexico City’s sights from its high and low points, filling pages with rich descriptions of the landscape. But writing about the vistas called for more than the aesthetic appreciation of atmospheric phenomena; it also involved the body. It entailed ways of knowing that were deeply corporeal—linked to both mind and mood—to produce understandings of the city that were distinctly cultural.

Towards the Appropriation of the Aerial Gaze: Nostalgia for the Era of Transparent Air

The nineteenth century was a hallmark period in the history of Mexico. During the 1800s, Mexico threw off the colonial yoke of Spain, gaining and asserting its independence as best as it could throughout the duration of the century. Though its role as an economic and political hub was a fate long cemented—prior, even, to the colonial creation of New Spain—Mexico City emerged from this transformative era a city newly defined by its air. Travelers who ventured to explore the Americas were drawn to New Spain, later independent Mexico, and had a hand in propelling such renditions of Mexico City to the level of a cultural trope. Building largely upon colonial chroniclers’ foundational descriptions of landscape, their distant insights were steeped in aesthetic and bodily knowledge, showing that the study of an impalpable substance required an observational approach that extended beyond the cerebral. Corporeal ways of knowing were, in fact, essential for capturing the complexity of nature’s most ineffable

¹¹¹ Bishop, *Travels of Anna Bishop*, 57.

¹¹² Ober, *Travels in Mexico*, 248.

element. Travel writers thus related feelings of envelopment and awe, of sadness and sickness, and of happiness and fulfillment. The aerial gaze thus encapsulated the allure of Mexico City's atmosphere, whose optical illusions were as visually pleasing as they were agential, demonstrating human geographer Tim Cresswell's assertion that landscapes consist both of the land's "material topography (that which can be seen) [*and*] the notion of vision (the way it is seen)."¹¹³ Whether they took in the valley's sights from atop a roof or a mountain, onlookers translated scenic vistas in narrative and visual form for the enjoyment of wider audiences, including family members at home and the growing population of interested tourists in Europe and the US.

Mexico City's reputation as an atmospheric city was premised on its abundant supply of pure air, deep-blue skies, and generally agreeable climate, but it was not wholly dependent upon these factors. Well into the twentieth-century, travelers could still be found speaking of Mexico City as a "[p]aradise for photographers." H. R. La Fond, the author of a 1951 tourist guidebook titled *How, When, and Where to Tour Mexico* informed readers that "It is easy to take pictures because the atmosphere is clear and the light brilliant. So plan to go to Mexico under brilliant skies..."¹¹⁴ Even as mid-twentieth-century industrialization took hold of the economy, profoundly altering the city's built environment as the following chapter shows, an air-centric characterization of Mexico's capital persisted.¹¹⁵ By then, however, such aged references had taken on an air of nostalgia. Nevertheless, Mexico City remained a city defined by its air, and by the second half of the 1900s, the labels used to describe the city increasingly pointed to an atmosphere that appeared more polluted, to vistas that were less crisp, and to an urban experience that was less pleasant. But the era of transparent air as it was conceived in the nineteenth century, and the corpus of travel literature from which this aesthetic emerged was not forgotten. Subsequent chapters develop this thread further, revealing how a host of historical actors—from politicians and industrialists to advertising companies and activists—appropriated old atmospheric

¹¹³ Tim Cresswell, *Place: An Introduction*, 2nd ed. (West Sussex, UK: Wiley-Blackwell, 2015), 17.

¹¹⁴ H. R. La Fond, *How, When, and Where to Tour Mexico* (Oakland: The Fontes Printing Co., 1951), 3.

¹¹⁵ According to Herbert Cerwin in 1947, "The physical transformation of the city—the tearing down of old structures, the construction of new ones...—is part of the current boom, of modern Mexico in the making." See Cerwin, *These Are the Mexicans*, 63.

narratives and created new ones, centering them in the making of Mexico City's twentieth-century landscape.

Chapter Two

A Metropolitan Air Settles in Mexico City: Modern Skyscapes and Material Processes of Transformation

When we last encountered Herbert Cerwin during his 1940s residence in Mexico City in Chapter One, he spoke at length about the valley's rarified air and its peculiar effects—uniquely Mexican in nature, he argued—on the body and on human behavior. In Cerwin's account, *These Are the Mexicans*, environmental factors such as altitude and climate fused to explain the cultural characteristics of a city. But Cerwin's commentary, part popular history and part informal ethnographic survey, also demonstrated that air could be used in a metaphoric sense to describe a temporally-specific version of the city. For example, by the late 1700s colonial Mexico City had “taken on a Spanish atmosphere” according to Cerwin's interpretation of Mexican history. And, at the time of his writing in 1947, he testified that the capital donned the “air of a metropolis with skyscrapers and apartment buildings.”¹ What our attentive narrator had managed to capture in the latter observation was a landscape in flux, an urban space being carved out by material forces of transformation, a “modern Mexico in the making.”² Although Cerwin referred to the air only figuratively in the latter case, the actual atmosphere engulfing the city, visibly populated with billows of smoke and automobile exhaust fumes, was as important to the forging of this mid-twentieth-century urban imaginary as the newly constructed physical infrastructure itself, with its multi-story office towers, factories, networks of freshly paved roads and recently completed highways, and the motorized

¹ Cerwin, *These Are the Mexicans*, 58. Trade advisor to the Pan American Union William Alfred Reid also witnessed the “construction of several modern office buildings, a few of which might be termed ‘skyscrapers’” in the mid-1920s, but concluded that, at that time, “Mexico City can not [*sic*] yet be termed a great manufacturing center, but rather a city in early stages of promising factory growth.” See William Alfred Reid, *Mexico City: A City of Palaces* (Washington, DC: Government Printing Office, 1924), 23. Revered Mexican architect Mario Pani recalled designing eight of twelve proposed *torres* or high-rise buildings and two hotels during the 1940s, see the transcript of his oral testimony in Mario Pani and Graciela de Garay Arellano, *Historial oral de la ciudad de México: Testimonios de sus arquitectos (1940–1990)* (México DF: CONACULTA, Instituto de Investigaciones Dr. José María Luis Mora, 2000), 65.

² Cerwin, *These Are the Mexicans*, 63.

vehicles that cruised along them.³ The sky, as this chapter demonstrates, was an important environmental agent upon which cultural projections of modernity were inscribed.

The Mexican government had sowed the seeds for the radical change in the capital's physical and cultural landscape through an economic development strategy of forced industrialization known as Import Substitution Industrialization, implemented as official policy nearly a decade prior to Cerwin's acknowledgement of the "boom" that had taken over Mexico City.⁴ While the city's growth rate (both in terms of its spatial expansion and its economic productivity) ebbed and flowed in the early twentieth century due to the unpredictability of the Mexican Revolution, the late 1930s and early 1940s represented a shift in its developmental trajectory.⁵ This is the Mexico City to which this dissertation advances next,

³ Scientists have begun to study the ways in which atmospheric aerosols—the solid and liquid particles that make up what we have come to know as pollution—affect cloud development and the visual appearance of the sky overall, see Ilan Koren, Guy Dagan, and Orit Altaratz, "From aerosol-limited to invigoration of warm convective clouds," *Science* 344, no. 6188 (June 2014): 1143–1146. The authors speculate that cloud coverage is connected to the presence of anthropogenically produced aerosols, and hence "[a] hypothetical aerosol-free atmosphere would probably mostly be cloud-free...theoretically, in such a clean environment, a small increase in aerosol loading could produce a very dramatic change from a cloud-free to partly cloudy atmosphere," see pg. 1143. The authors conclude by surmising that the atmosphere of the "preindustrial globe" would have looked much less cloudy. While a general absence of records of aerosol levels prevents historians from corroborating or shedding more light on this postulation, it nevertheless reminds us that the sky was also a domain through which people measured, experienced, and, as this study shows, articulated environmental change. Another scientific study examined over one hundred well-known works of art, specifically landscape paintings featuring sunsets, treating them "as proxy information" for determining atmospheric aerosol levels (as perceived by variability in what they term atmospheric optical depth levels) over 500 years, from 1500 to 2000. The authors argue that "...nature speaks to the hearts and souls of the artists[.] Sunsets...perceived by the brain contain important environmental information," see C. S. Zerefos et al. "Further evidence of important environmental information content in red-to-green ratios as depicted in paintings by great masters," *Atmospheric Chemistry and Physics* 14 (2014): 2996. Researchers have relied on historical pictorial documents to study other, more easily perceptible manifestations of climate change, most frequently through analysis of glacial imagery in visual records, see H. J. Zumbühl and S. U. Nussbaumer, "Little Ice Age Glacier History of the Central and Western Alps from Pictorial Documents," *Cuadernos de Investigación Geográfica* 44, no. 1 (2018): 115–136.

⁴ Cerwin, *These Are the Mexicans*, 60. In short, ISI was a regional phenomenon, and in Mexico, ISI aimed to elevate domestic productivity and achieve the "mexicanization" of previously imported goods so as to reduce the nation's reliance on foreign imports. As such, ISI was a calculated economic and a political move. Though there were significant economic achievements in the project of industrialization prior to the twentieth century in Latin America, theoretical and policy recommendations for ISI were articulated by the United Nations Economic Commission for Latin America in 1950. On current debates and trajectories of the study of ISI in Latin America, see Colin M. Lewis, "CEPAL and ISI: Reconsidering the Debates, Policies, and Outcomes," *Revista de Estudios Sociales* 68 (April–June 2019): 8–26.

⁵ Geographer Gustavo Garza Merodio has examined the "metropolitanization" of Mexico City from 1870 to 1920, identifying this period as the "backbone" of later urban growth during the twentieth century. He notes that Mexico City was affected by the "economic paralysis of the Mexican Revolution" as was much of Mexican territory in general, but still displayed a "truly amazing" growth under the "harsh conditions of the Mexican Revolution," both in terms of increases in population and physical size of the urban area. From 1910 to 1920, for instance, the city expanded from 962 hectares to 3,250, and from 1900 to 1920, the Censo General de la Población reports a near-double population increase, from 344,721 people to 615,367. See Gustavo Garza Merodio, "Technological

looking both at the systemic structural landscape change produced by the “Mexican Miracle” to which Cerwin alluded and at the ways in which the architects of this era of modernity discursively wielded Mexico City’s atmosphere to reflect and reproduce a specific, state-supported ideology of progress. Unlike the previous chapter, which dove into the atmospheric narratives written by the enraptured travelers of an earlier century, this chapter highlights subtler and more utilitarian infatuations with the sky taking place within an overarching context of economic opulence. Although many scholars have shown that the Mexican economic miracle was a “miracle” in name only, the physical transformation that unfolded during this cycle of economic growth was nothing short of unprecedented.⁶ During this period, which began in the late 1930s, reached its apogee by the mid-1940s and 1950s, stabilized in the 1960s, started to fluctuate with the onset of the 1968 student movement, and collapsed in the early 1970s, industrial facilities, commercial centers, and motor vehicles altered the face of the city, engineering, in Cerwin’s words, a “congested capital...that affected in various ways the lives and habits of the people.”⁷ Mexico City’s metamorphosis into a crowded but productive hub of national progress had environmental

Innovation and the Expansion of Mexico City, 1870–1920,” *Journal of Latin American Geography* 5, no. 2 (2006): 109–126; for 1900–1920 population statistics, see Dirección General de Estadística, *Tercer Censo de Población de los Estados Unidos Mexicanos, 1910*, <https://www.inegi.org.mx/programas/ccpv/1910/>; Dirección General de Estadística, *Censo General de Habitantes, 1921*, <https://www.inegi.org.mx/programas/ccpv/1921/>; and **Appendix C** for Mexico City’s population statistics from 1900 to 1990. Meanwhile, Peter Ward has called the period from 1936 to 1940 a “critical turning point, both in the nation’s history, and, more specifically, in that of the capital city,” see Peter M. Ward, “Mexico City,” in *Problems and Planning in Third World Cities*, 2nd ed., ed. Michael Pacione (New York: Routledge, 2013), 29–31. Still another interpretation is that of Enrique Cárdenas Sánchez, who located the basis for its 1940s economic growth within the Depression era, see Cárdenas Sánchez, *La industrialización mexicana*. Another approach is that of urban anthropologists Robert Kemper and Anya Royce, who treat Mexican urbanization as cycles of centrifugal (away from center) and centripetal (towards center) growth stages dependent upon the country’s overall political stability, for an elaboration of this framework, see Robert V. Kemper and Anya P. Royce, “Mexican Urbanization since 1821: A Macro-Historical Approach,” *Urban Anthropology* 8, no. 3/4 (1979): 267–289.

⁶ In current scholarship, the term “Mexican Miracle” generally acts more as a periodization tool to refer to the mid-twentieth-century era of rapid urban and state-sponsored economic growth, rather than as an accurate representation of the onset of that period. Scholars have long argued that the roots of these miracle years were grounded in economic protectionism and fiscal planning, perhaps even on an “ad hoc” basis according to Louise Walker, and thus Mexico’s high economic growth rate was not wholly unexpected, nor, as some scholars have also suggested, equally miraculous for everyone. In fact, as one economist has contended, the “miracle” “exacerbated existing structural weaknesses endemic to the Mexican economy [such as the unequal concentration of income], [and] paved the way for the crises of 1976 and 1982,” see Miguel D. Ramírez, “Mexico’s Development Experience, 1950–1985: Lessons and Future Prospects,” *Journal of Interamerican Studies and World Affairs* 28, no. 2 (Summer 1986): 39, 50; Walker, *Waking from the Dream*, 6.

⁷ Cerwin, *These Are the Mexicans*, 63.

consequences, however, as the agents of the city's development became the purveyors of its ambient pollution.

Obscured from view by the routinely opaque sky, the mountainous Mexican skyline, a defining attribute of the landscape, early on betrayed the effects of rapid and concentrated industrialization in the capital. As the next chapter illustrates, some residents, like chemist Humberto Bravo Álvarez and meteorologist and geographer Ernesto Jáuregui Ostos, identified atmospheric change by the “increased turbidity” of the sky, and, through a series of experiments, collected suspended particles and deposited material from the atmosphere, proffering “demonstrative data on the existence of the air pollution problem” as early as 1958.⁸ Their research made the case that the “emanations of the city itself,” and not, as previously assumed, the windblown dust from the dried lakebeds to the east—by then a familiar nuisance—produced the “cloud of impurities that blur[red] the city's landscape” by midcentury.⁹ Yet such revelations and, more importantly, their recommendation to “[initiate] an air pollution control program in Mexico City” had virtually no immediate impact from a policy standpoint, as thirteen years would pass before Mexico enacted its first clean-air law in 1971, one which public policy experts have lambasted for its limited scope.¹⁰ Only after three decades and multiple air emergencies did “stricter” legislation, beginning in the mid-1980s, strive to gain control of the city's pollution, a process that Chapter Four investigates more fully.¹¹

Although citizens such as Bravo and Jáuregui sensed changes in the quality of the air based on the repeated occurrence of low-visibility days and used their relative expertise to quite literally map the parameters of an emerging environmental problem, the contamination of the atmosphere rarely entered

⁸ For his part, Bravo wrote that “...sufficient contamination exists to give consideration to the initiation of an air pollution control program in Mexico City,” see Humberto Bravo Álvarez and Gustavo Viniegra, “Estudio preliminar de la Polución Atmosférica in la Ciudad de México,” 1958, cited in Bravo, “Variation of Different Pollutants,” 447, 449; Ernesto Jáuregui Ostos, “El aumento de la turbiedad del aire en la Ciudad de México,” *Ingeniería Hidráulica en México* 12, no. 3 (1958); some scholars have claimed that “The degree of atmospheric pollution [had] become apparent from 1937,” see, for example, Ward, “Mexico City,” 45. However, this author has not been able to find evidence confirming this assertion.

⁹ “Contaminación del aire ciudadano,” *Gaceta de la Universidad Nacional Autónoma de México* 6, no. 13 (March 30, 1959): 4

¹⁰ Bravo, “Variation of Different Pollutants,” 449.

¹¹ Adrián Guillermo Aguilar, Exequiel Ezcurra, Teresa García, Marisa Mazari Hiriart, and Irene Pisanty, “The Basin of Mexico,” in *Regions at Risk: Comparisons of Threatened Environments*, ed. Jeanne X. Kasperson, Roger E. Kasperson, and B.L. Turner (Tokyo: United Nations University Press, 1995), 304–366.

into bureaucratic conversations about the city's development in the first half of the economic miracle years. Quite the contrary, government officials took the position that to worry about environmental considerations was to pump the brakes on economic development and therefore on national progress. Yet the disavowal of air pollution in the arena of official politics did not also mean that historical actors from the 1930s to the 1950s stopped paying attention to the atmosphere itself during this crucial phase in Mexico City's urban history. The smoke-saturated Mexico City sky visually corroborated a burgeoning modernity, becoming central to the ways in which material progress was communicated and perceived. In government propaganda and in the promotional material produced by private companies alike, the sky transformed into a key symbol of the new age of nationalism into which Mexico had boldly arrived, one that was predicated on the exploitation of nature's resources to achieve national self-sufficiency.

To understand these nuances in the use of sky imagery and atmospheric discourse and, indeed, the broader transformation of the valley from the most transparent region in the world to the most polluted requires a study of the landscape that humans built from the 1940s to 1970. As will become apparent here and in the following chapter, Mexico City's mid-twentieth century terrestrial evolution altered the way people thought, wrote about, and experienced the city, affecting perceptions of even the most immaterial components in its urban environment, such as its sky. Humans ascribed multiple meanings to the sprawling, industrialized landscape—in this early stage of the miracle, buildings, motor vehicles, smokestacks and their effluvia communicated productivity, profitability, and a nation's hope for the future. Though discourse about atmospheric deterioration materialized almost coeval with narratives asserting the legitimacy of extractive, developmentalist growth, the former did not gain traction with policy makers, at least not during the first half of the miracle decades, when the state had written its nationalistic project both in the clouds as well as on the ground.

By the second half of the Mexican Miracle, however, an unlikely cast of characters had brought air pollution concerns to light through the creation of altogether different air-centric narratives that collectively decried the loss of Mexico City's distinctive blue sky and clean air. This chapter establishes the requisite context required for the examination of those mid-twentieth-century atmospheric dialogues,

which come into bloom in Chapter Three. After first mapping the contours of Mexico City's economic situation going into the 1940s, including the general characteristics of its industrial development and how the sky, of all things, turned into a symbolic site for the articulation of Mexico City's newfangled urban ethos, the current chapter tells the essential story of mid-twentieth-century industrialization taking place on the ground. It does so through a micro-spatial factory case study of one company, Ford de México, S.A. de C.V., a subsidiary of the Michigan, US-headquartered Ford Motor Company. Ford de México, as the chapter shows, offers a useful entry point for the examination of the economic, cultural, and environmental discourses that drove Mexico City's twentieth-century urban transformation.

Ford came to Mexico City on March 18, 1925, and remained the sole auto manufacturing plant in the country for a decade, making it an early and widely successful foreign industrial *and* automotive presence in modern Mexico.¹² The physical factory itself was also a catalyst in the transformation of the capital's urban geography, even more so after its 1930s relocation to a budding industrial district, which involved the repurposing of a wide swath of open land into a multi-building industrial compound. Using archival material sourced from the Benson Ford Research Center in Dearborn, Michigan, a repository heretofore untapped by historians of Latin America, this chapter reconstructs the founding and prerogatives of Ford de México as perceived through the eyes of the managers, accountants, lawyers, and ad men who ran and worked at its Mexico City branch. It argues that Ford de México not only epitomized the national crusade for industrial modernity, but that it helped create a new cultural landscape as well. Ford de México's advertising campaigns and publicity events from the 1930s to the 1950s provide evidence for this claim: through the perceptive use of Mexico's environmental features ranging from landmarks to skylscapes, Ford's advertising agents further inculcated the company and its automobiles into Mexican society. As it manufactured both automobile parts (later, entire automobiles destined for national consumption) and domestic automobile consumers, Ford de México became synonymous with economic progress and presented itself as a unique amalgamation of the nation's

¹² About ten years after Ford's entry into the Mexican automotive production industry, General Motors and Chrysler followed in 1935 and 1937, respectively, see John Brian Freeman, "Transnational Mechanics: Automobility in Mexico, 1895–1950," (PhD diss., City University of New York, 2012), 15.

political, economic, and popular interests. In time, however, the company's quest, much like the country's, would find itself at odds with the call for global cooperation in achieving the twin objectives of environmental conservation and sustainable development set off by the 1972 UN Conference on the Human Environment in Stockholm. With the rise of an international environmental consciousness in the 1970s, ecologists in Mexico derided the valley's 1.5 million automobiles, and, to a lesser degree, its 30,000 industrial facilities as the primary sources of the city's atmospheric pollution, casting doubts about the future of Mexico City's industry-fueled prosperity and about companies like Ford de México.

Indeed, Ford de México is a singular sampling of the sizeable Mexican industrial manufacturing sector. Furthermore, it constitutes but one of the tens of thousands of players in Mexico City's larger industrial transformation. Yet this chapter maintains that Ford de México's case is emblematic of the emergence and prevalence of the national developmentalist tendency that characterized Mexico's broader industrialization project. Urban studies scholars, economists, and economic historians who have cast a wider net than this chapter can have shown that Mexico's industrialization trajectory was complex and disjointed, interrupted prematurely by domestic and international disturbances such as the Mexican Revolution, the Great Depression, and World War II, and hindered by the Cold War and the internal social movements of the early 1970s. There is a general consensus, however, that the transformation from an agrarian to an industrial economy occurred in the mid-twentieth century and that the process was marked by state economic protectionism, nationalist rhetoric, and, as historian Susan M. Gauss asserts, changes in "intellectual culture and popular mentalities."¹³

Scholars such as Gustavo Garza Villarreal, Luis Unikel, Enrique Cárdenas Sánchez, Martha Schteingart, Diane Davis, Gauss, and many others have collectively spent decades dissecting Mexico's twentieth-century economic and urban growth patterns.¹⁴ While there are differing interpretations as to

¹³ For Gauss, the term "industrialism" more appropriately captures this overarching transformation, which went beyond the "solely economic changes...in the [modes] and material basis of production that constituted the historical process of industrialization." See Susan M. Gauss, *Made in Mexico: Regions, Nation, and the State in the Rise of Mexican Industrialism, 1920s–1940s* (University Park, PA: The Pennsylvania State University Press, 2010), 5.

¹⁴ Garza, *El proceso de industrialización*, Luis Unikel, Crescencio Ruiz Chiapetto, and Gustavo Garza Villarreal, *El desarrollo urbano de México: Diagnóstico e implicaciones futuras*, 2nd ed. (México, DF: El Colegio de México, 1978); Davis,

precisely which events precipitated the rise of statist industrial growth, as well as debates about its scale and resilience, scholars have increasingly pointed to the “malleable” nature of Mexico’s industrial undertaking. Regional studies, in particular, have uncovered the “disparate industrial paths” that powered the twentieth-century economic transition, proving that Mexico’s journey towards industrialization was anything but homogenous, despite the state’s deep involvement.¹⁵ At the same time that this chapter furthers the trend towards regional analysis in the historiography of Mexico’s industrial development, approaching Mexico City as Gauss does in *Made in Mexico*, as an “industrial region whose project for protected urban manufacturing was ascendant amid post-revolutionary social dislocation” and disruptive international conflicts, it also delves deeper into the history and psychology of one company to provide a more intimate and localized understanding of the social, cultural, economic, and environmental change underwriting modern, industrial Mexico City.¹⁶ Mexico City at midcentury functioned like a well-oiled machine; it became a city of consumers, of laborers, of productivity, and of growth. As they advertised their products to the middle-class consumer market, connecting them to this new manifestation of urban life, companies like Ford de México helped stimulate and then sustain Mexico City’s evolution. In the process, Ford de México was engrained into the economic and cultural fabric, defended as such against the incursion of fledgling environmental concerns by the latter decades of the economic miracle.

The Making of a New Landscape: Political and Economic Undercurrents of Industrial Growth

In 1939 the Central Executive Committee of the newly configured Partido de la Revolución Mexicana (the Party of the Mexican Revolution, PRM), Mexico’s ruling political party, released its objectives for the upcoming *sexenio*, or six-year presidential term.¹⁷ Only the second of its kind following

Urban Leviathan; see also Sarah L. Babb, *Managing Mexico: Economists from Nationalism to Neoliberalism* (Princeton: Princeton University Press, 2001), esp. ch. 4.

¹⁵ Gauss, *Made in Mexico*, 17, 11. For more exhaustive coverage of the historiography of Mexican industrialization, see Susan M. Gauss, “Made in Mexico: The Rise of Mexican Industrialism, 1938–1952,” (PhD diss., State University of New York at Stony Brook, 2002), 8–19.

¹⁶ Gauss, *Made in Mexico*, 23.

¹⁷ As mentioned in the introduction, Mexico attempted to bring about political stability soon after the cessation of the military phase of the Mexican Revolution in 1920. The presidency of Álvaro Obregón Salido (1920–1924) immediately after revolution’s end was a step in this direction; however, due to ongoing regional violence during Obregón’s term, Plutarco Elías Calles (1924–1928), the second post-revolutionary president, is the figure credited

the 1933 plan that initiated Lázaro Cárdenas's presidency (1934–1940), the proclamation was appropriately titled *El Segundo Plan Sexenal*, or the Second Sexennial Plan.¹⁸ “Mexico Builds,” announced the cover of the publication, providing a fitting snapshot of the contents inside (**Figure 2.1**). A brawny male perched on one knee dominates the cover. This was the prototype of the new Mexican laborer, reconceptualized and hard at work. The urban, modern, able-bodied everyman, rather than the rural fieldworker, or *campesino*, was to become the face of Mexican economic nationalism. The identity of the cover model is unknown and nonessential, but the contours of his facial features are illuminated by a soft light in the foreground, giving away a look of stoic determination. Enveloped in shadows, he confidently brandishes a trowel in one raised hand while laying brick with the other. A generous layer of fresh mortar oozes underneath the brick he has just affixed to the unfinished foundation, not yet smoothed or hardened in neat lines like those directly below it—a work in progress, much like the nation itself. In a prominent display of *Mexicanidad*, his chest cavity cradles Mexico's coat of arms: a golden eagle perched on a fruiting nopal cactus branch and feasting on a rattlesnake.

with the consolidation of political power through the Partido Nacional Revolucionario (PNR) in 1929, a year after his presidency officially ended. Operating behind a series of two-year interim puppet presidencies triggered by the assassination of Obregón, who was once again elected president in 1928 owing to a short-lived lifting of Mexico's 1850s no re-election clause, Calles, the self-styled “Jefe Máximo,” set the foundation for one-party political rule and control over political succession. With the election of Lázaro Cárdenas in 1934, the PNR underwent a reorganization in 1938, becoming the PRM until 1946, when President Manuel Ávila Camacho (1940–1946) renamed it for the final time to the Partido Revolucionario Institucional (PRI) during his last year in office. The PRI held power from 1946 until 2000, though the scholarly literature recognizes its hegemony as dating back to its 1929 founding. While many historians have explored the institutionalization of the one-party system through the lens of the Mexican Revolution and the post-revolutionary period, the 1992 compilation on presidential succession during the twentieth century gives a more nuanced account of the political party itself, see Carlos Martínez Assad, ed., *La sucesión presidencial en México, 1928–1988*, 2nd ed. (México, DF: Nueva Imagen, 1992).

¹⁸ Partido de la Revolución Mexicana, *Segundo plan sexenal, 1941–1946. Texto aprobado en la Asamblea Nacional celebrada en la ciudad de México los días 1, 2 y 3 de noviembre de 1939 y varios discursos documentales pronunciados por el Gral. Manuel Ávila Camacho, candidato nacional a la Presidencia de la República, postulado por el P.R.M., y por el Gral. Heriberto Jara presidente del C.C.E. del propio instituto político* (México: PRM, 1939); according to the government study commission, the purpose of the plan was to serve “as a general guide to the policy of the Government of the Republic during the forthcoming constitutional period,” see PRM, *Segundo plan sexenal*, 35; for a thorough history of national planning and the use of the plan as an “instrument of constitutional governance,” see David J. Edelman and David J. Allor, “National Planning in Mexico: An Historical Perspective,” *Current Urban Studies* 6, no. 3 (September 2018): 293–339.

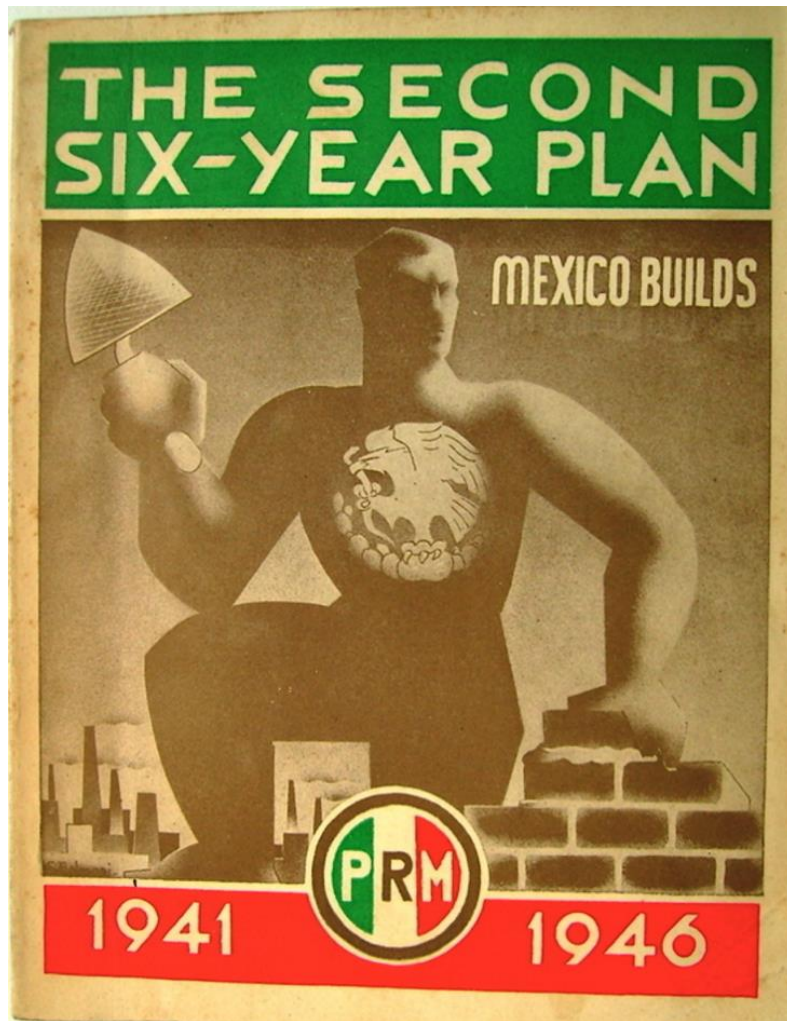


Figure 2.1: “Mexico Builds” an Industrial Economy. Mexican Revolutionary Party, *The Second Six-Year Plan, 1941–1946: Text Approved in the National Assembly Held in the City of Mexico on the 1st., 2nd., and 3rd. Days of November 1939 and Several Documental Speeches Delivered by General Manuel Ávila Camacho and General Heriberto Jara* (México: PRM, 1939). (English-language version)

A dramatic, thick sky envelops the domineering figure; in it is housed an iconography of modernity. This atmosphere, to which the multitude of factory chimneys in the distance contribute dark wafts of smoke, signals productivity churning away from afar. At the same time, a more suggestive narrative surrounds this particular rendition of urban scenery, adding a level of complexity to the polished picture presented upon first glance: the sky, while adorned with the constitutive fumes of industry, appears hazy and stagnant, and instead of the beloved snow-capped volcanoes and rugged

topography, the skyline is comprised entirely of manufacturing facilities. Devoid of its mountain ranges and natural features, this representation of Mexico City's skyscape broke away from the overpowering romantic aestheticism prevalent in nineteenth-century art. The nation had evidently turned over a new leaf; industrialization altered not only the physical layout of the city, but artistic portrayals of the picturesque Mexican landscape as well. The subduing of its natural beauty in favor of a more utilitarian imagery, as communicated through such symbols as factory structures, their protruding chimneys, and smoky outputs, visually corroborates a pro-industrial ideology. In so few words, but in no less powerful a manner, the upcoming presidential administration impressed upon the Mexican public its aspirations for state-building and economic progress through industrial means. The sky, as this piece of official government propaganda indicates, was integral to the transmission of the state's message.

Shortly before the publication of the second Plan Sexenal, the PRM "precandidate" and soon-to-be president, Manuel Ávila Camacho, made the state's objectives known during a celebratory parade thrown in his honor. In his opening address, delivered on October 29, 1939, he invoked the Mexican Revolution, declaring that Mexicans would become the "free builders of their own country" and that "nothing could hurt more the march of the Revolution than not understanding fully that...there is the opportunity which should urgently be taken, of saving him [the Mexican people] from the oppression of misery."¹⁹ The appropriation of the revolution in this manner was a form of institutionalizing its evolving revolutionary principles. By presenting economic self-sufficiency vis-à-vis large-scale, state-led industrialization as the country's next logical step towards the fulfillment of the long Mexican Revolution, in other words as a "new version of revolutionary nationalism," the PRM's change in direction away from the reformist and redistributive tendencies embraced by *cardenismo* and towards capitalistic developmentalism gained political viability and won over popular support.²⁰

¹⁹ PRM, "Division General Manuel Avila Camacho's address," *Segundo plan sexenal*, 10. The historiography of the institutionalization of the Mexican Revolution is vast and captivating. For an accessible overview of the ways in which figures, festivals, and monuments have contributed to the formation of *La Revolución*, see Thomas Benjamin, *La Revolución: Mexico's Great Revolution as Memory, Myth, and History* (Austin: University of Texas Press, 2000).

²⁰ Gauss, *Made in Mexico*, 204.

President Ávila Camacho's speech therefore stressed the idea that Mexicans needed to harness the revolution, which had "definitely entered a period of straightforward national construction, whose fundamental goal, in the material aspect, must be to create by all means compatible to economic justice, a regime of abundance developing the potential wealth of our Country." Continuing on, the president gave instructions as to how Mexico would carry out these ambitions: "We must subdue nature's forces to free ourselves from the servitude imposed by primitive life," he began, "We need to build, to produce, to industrialize ourselves, to take advantage of our natural resources...developing our small industries...mechanizing our civilization and impulsing an increasing production, an enthusiastic creation of the national wealth under the rules of distributive justice." The factories and the farms in which the everyday workman labored, he maintained, were to be seen as "a part of the national patrimony;" they were places where national products would be made for Mexicans to consume, and where Mexicans worked "for the benefit of the country." Without the steadfast commitment of the urban laborers, who themselves stood to gain from Mexico's economic overhaul, and without the development of industry, the "Revolution shall not be able to materialize its achievements. Only through a vigorous strengthening of the Country," he concluded, "the true Revolution can be lived."²¹ Other official publications, like the *Calendario nacionalista y enciclopedia popular*, reiterated such developmentalist discourse in their depictions of an entire country at work—in the fields and on the factory floor—thus capturing the nationalist spirit of the Ávila Camacho administration and its enthusiasm for economic progress (**Figure 2.2**). In the image below, a skyscape overburdened with industrial architecture, very much resembling that which appears in the background of the PRM's manifesto, stands out against a segmented rural landscape depicting domesticated farmland and agricultural labor taking place upon it. The drifting smoke clouds aesthetically animate the atmosphere, presented by the illustrator as among the necessary and welcomed elements of modernity. These are not ruinous gases or defilements of urban space; they are instead constitutive fumes—they, in effect, add to rather than erase or take away from the surrounding landscape. As visual artist and art historian Anne Helen Mydland's case study on the memory of dust in industrial spaces has

²¹ PRM, "Division General Manuel Avila Camacho's Address," *Segundo plan sexenal*, 9–11.

pointed out, such aspects are tokens—albeit immaterial in comparison to the infrastructural complements—of the “...massive physical effort and hard work that was needed for the factory to be alive” in the first place.²² Together, the three panoramas, a blend of new and old scenery, represent the wealth of opportunities awaiting Mexicans who were to be called upon to support the country in its pursuit of growth. A pictorial exemplification of the intermingling of nature and culture, the image also illustrates the ways in which human interventions on a grand scale had already constructed the *image* of the modern Mexican landscape.

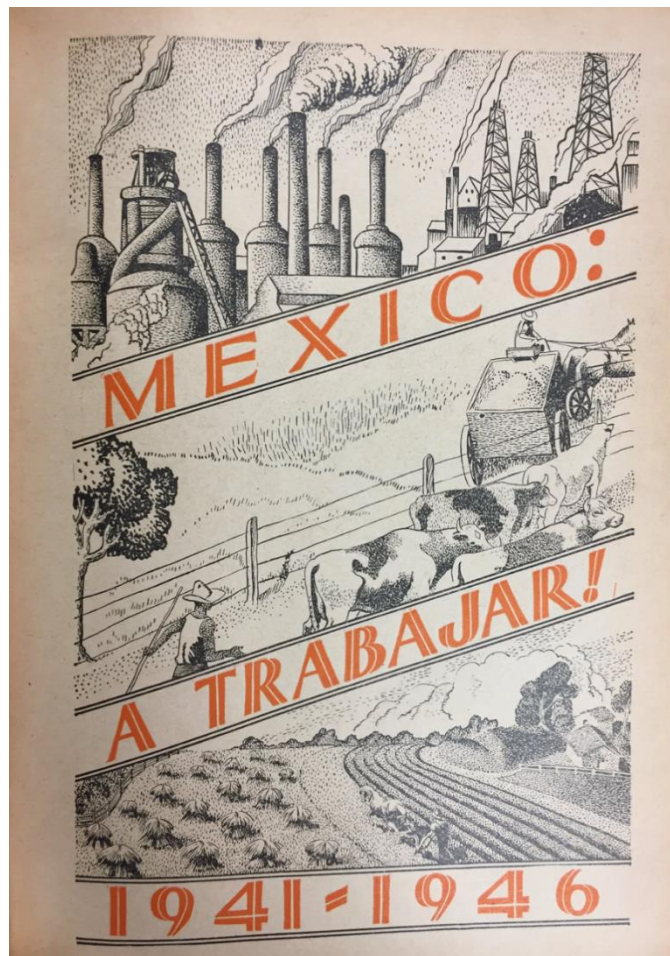


Figure 2.2: ¡A trabajar! Mexico at Work. Partido Nacional Revolucionario, *Calendario nacionalista y enciclopedia nacional popular* (México, DF: Partido Nacional Revolucionario, 1934). [Image dated 1941]

²² Anne Helen Mydland, “Notes on Material Memory in Post-Industrial Landscapes—*Holding on, by letting go*: Topographies of the Obsolete,” in *The Post-Industrial Landscape as Site for Creative Practice: Material Memory*, ed. Gwen Heeney (Newcastle upon Tyne, UK: Cambridge Scholars Publishing, 2017), 143–144.

The Mexican federal government, for its part, would take an active role in facilitating the expansion of industry. According to Ávila Camacho's Minister of Finance, Eduardo Suárez, the state would "help private enterprise to take charge of transforming the country."²³ To accomplish this, the government devised both legal and fiscal mechanisms to incentivize industrial development and diversify the existing industrial base. The Ávila Camacho administration promulgated the *Ley de Industrias de Transformación* (Law of Manufacturing Industry) on April 21, 1941, in order to "...make ample credit at reduced rates of interest available to businessmen who wish to assume responsibility for expanding production, and who are also prepared to invest some capital in industries which the State is anxious to see developed."²⁴ Among other things like a reprieve from import taxes on capital goods required for production, this law authorized the Secretaría de la Economía Nacional (Ministry of the National Economy) and the Secretaría de Hacienda y Crédito Público (Ministry of Finance and Public Credit) to approve a maximum five-year federal tax exemption for manufacturing industries deemed "new and necessary." The "new and necessary" provision was an important clarifying clause because, while it created an aperture for the growth of new industries, aspiring businesses had to make a case for their novelty and the economic advantage they would bring to Mexico, therefore allowing some protections for extant businesses that would not receive the tax break.²⁵ While incentives were structured to make

²³ Eduardo Suárez, as quoted in Tomme Clark Call, *The Mexican Venture: From Political to Industrial Revolution in Mexico* (New York: Oxford University Press, 1953), 23.

²⁴ Suárez in Call, *The Mexican Venture*, 23–24.

²⁵ "Ley de Industrias de Transformación," *Diario Oficial de la Federación*, May 13, 1941. Notably, the 1946 Law for the Development of Manufacturing Industries expanded the exemption period from five to up to ten years, see "Ley de Fomento de Industrias de Transformación," *Diario Oficial de la Federación*, February 9, 1946. In 1955, the Law for the Development of New and Necessary Industries, which further clarified the state's roles in determining the "new and necessary" clause, replaced the 1946 law, remaining in place until the 1970s, see "Ley de Fomento de Industrias Nuevas y Necesarias," *Diario Oficial de la Federación*, December 2, 1955. According to the 1955 law, "new industries will be considered to be those which are dedicated to the manufacture or fabricating of merchandise which is not produced in the country, provided that they are not mere substitutes for others which are already being produced, and which (industries) will contribute in an important way to economic development," see Art. 2. However, Gauss has shown that defining what was "new and necessary" was, in fact, problematic due to "a lack of knowledge about national industry or ambiguity among technocrats and officials about developmental priorities," the inability to differentiate between goods necessary to fulfill unmet popular demand and goods which were only in demand due to the scarcities brought on by World War II, and regional legislation that "often thwarted federal efforts to standardize protectionist policies and extend national authority over the economy." See Gauss, *Made in Mexico*, 76–80. After the war, and with the stabilization of trade relations, Mexico attempted to reduce foreign competition and maintain the momentum of ISI by enacting the Import Suspension Decree in 1947 to control the country's imports of "nonessential" consumer goods such as canned foods, housing appliances, and automobiles. See *Diario Oficial de la Federación*, July 11, 1947.

sure that domestic capital went to domestic projects, they also “provide[d] opportunities for the foreign investor.” Indeed, as the US Department of Commerce reported, manufacturing was the “field of largest foreign investment” from the mid-1940s to the mid-1950s.²⁶

In 1940, Mexico also augmented the powers of the government development bank, Nacional Financiera, S.A., formed during the Cárdenas era, granting it a new role. In collaboration with the Banco de México (Mexico’s central bank), Nacional Financiera would finance industry directly and invest in urban and industrial infrastructure to support increased economic activity.²⁷ The effect, as spelled out by Suárez, would be that “Mexico will manufacture a good portion of the articles which she now imports” thus gaining its national economic independence as outlined in the Plan Sexenal.²⁸ Events in the international sphere, namely World War II, further boosted manufacturing activity in Mexico in two ways: as the US economy began focusing on bolstering wartime production at home, its supply of consumer goods exports to regions like Latin America dwindled, creating an opportunity for the domestic production of these goods; second, Mexico increased its production of raw materials for export to the US in order to quench bloated and temporary wartime demands.²⁹ The combination of developmentalist impulses internal to Mexico, the government’s active role in industrial planning, and disruptions to markets abroad culminated in the beginning of what became known as the Mexican Miracle.³⁰

²⁶ United States Bureau of Foreign Commerce, American Republics Division, *Investment in Mexico, Conditions and Outlook for United States Investors* (Washington, DC: US Department of Commerce, Government Printing Office, 1956), 19–20.

²⁷ “Ley Orgánica de la Institución Nacional de Crédito denominanda ‘Nacional Financiera, S.A.’,” *Diario Oficial de la Federación*, December 31, 1940. From 1945 to 1950, Nacional Financiera approved fiscal concessions to 570 companies, one-fifth of which went to the producers of metal products while the rest was dispersed among twenty-four industrial subgroups totaling to 465 companies, see Nacional Financiera, S.A., *Décimaséptima Asamblea General Ordinaria de Accionistas*, 1951, 103. By 1955, private banks had taken over the role of financing manufacturing industries, while *Nacional Financiera* focused its efforts on infrastructural investment, see Moreno-Brid and Ros, *Development and Growth in the Mexican Economy*, 97–98; for more on the private sector’s assumption of financing public sector investments, see Ramirez, “Mexico’s Development Experience,” 48–49.

²⁸ Suárez in Call, *The Mexican Venture*, 24; see also section II of the *Plan sexenal*, 61.

²⁹ L. Antonio Aspra, “Import Substitution in Mexico: Past and Present,” *World Development* 5, no. 1/2 (1977): 112–113. Some scholars have argued that “external demand, rather than import substitution, provided the most important boost to manufacturing activity” during the World War II period, see Moreno-Brid and Ros, *Development and Growth in the Mexican Economy*, 101.

³⁰ Juan Carlos Moreno-Brid and Jaime Ros divide the miracle into three phases: the war boom from 1940 to 1945, the sustained economic growth and inflation period from 1946 to the 1950s, and the “stabilizing development

This wave of state-sponsored industrial and urban development rippled through various cities in Mexico, transforming urban enclaves such as Monterrey, Guadalajara, and Puebla into manufacturing centers. By far the most profound impact occurred in the nation's capital, however, which underwent concurrent demographic, spatial, and infrastructural explosions.³¹ From 1930 to 1940, the first decade of twentieth-century industrialization, Mexico City witnessed an impressive 55-percent increase in industrial establishments. Many of these were situated along the city's northern perimeter in *delegaciones* or boroughs like Azcapotzalco, which housed a large oil refinery belonging to Petróleos Mexicanos (Mexican Petroleum, the national oil company), although industries also appeared in Iztapalapa to the east and Álvaro Obregón in the west, home to a cluster of cement-producing factories.³² At the beginning of Ávila Camacho's presidency, 4,920 factories peppered the urban landscape, a figure that represented just under 9 percent of the country's total industry. But from 1940 to 1950, when the rest of the country exhibited a cumulative 1 percent decline in industrial growth, the capital's rate peaked at an astonishing 158 percent, and its 12,704 industrial facilities by 1950, the mid-point of the equally protectionist Miguel Alemán Valdés administration (1946–1952), corresponded to 20 percent of national industry (**Table 2.1**).³³ This uptick can be explained by the fact that, during the first half of the 1940s, Mexico City received almost 500 federal exemptions to new industries, amounting to more than half of the total granted exemptions

phase," which lasted from 1958 to 1970, see Moreno-Brid and Ros, *Development and Growth in the Mexican Economy*, 99.

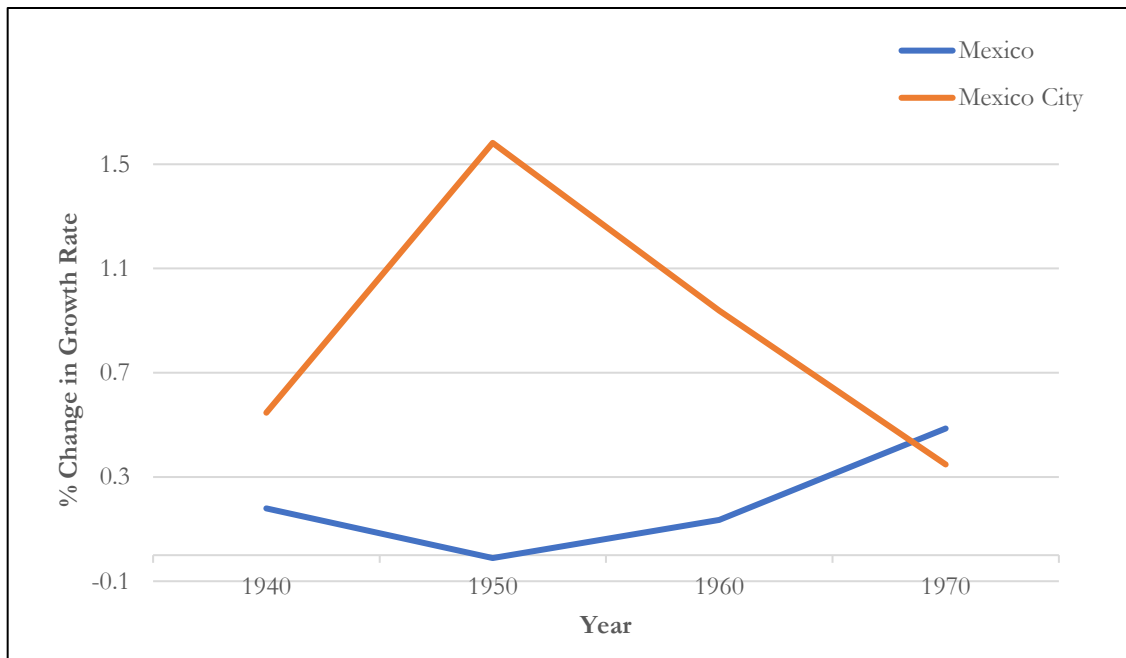
³¹ As Martha Schteingart explains, the concentration of industrial development and urban growth in the capital was not wholly surprising. Mexico City, the political and administrative capital of the country, had "the most sophisticated infrastructure in the country," a trained labor force, a market for consumer goods, and existing industries. See Martha Schteingart, "The environmental problems associated with urban development in Mexico City," *Environment and Urbanization* 1, no. 1 (April 1989): 40. Ward has pointed out another commonality: each of the cities above also had relatively easy access to financial institutions, see Ward, "Mexico City," 31.

³² Ward, "Mexico City," 35; Unikel, *El desarrollo urbano*, 310–311. See also **Appendix A-6** for the political and administrative map of Mexico City and the Federal District. PEMEX's Azcapotzalco refinery closed on March 18, 1991, due to its persistent violation of air quality laws, but has since been memorialized as "'a pillar in the industrialization of the country,' supplying the fuel for Mexico's development between 1940 and 1960." Chris Angelo, "Plagued by Smog, Mexico Closes Huge Oil Refinery," *Associated Press*, March 18, 1991.

³³ Percentages calculated from data in Garza, *El proceso de industrialización*, 142. After this period, the growth rate decreased slightly but stayed unbelievably strong at 94 percent during the 1950s. Mexico City continued to house a greater percentage of national industry throughout the mid-twentieth century, maxing out by the end of the 1960s, when the city grew to represent 30 percent of the total industrial establishments, or 24,624 facilities. In the 1970s, Mexico City held more factories than the previous decade—33,185—but that number constituted a smaller portion, 28 percent, of the total industrial presence.

for the five-year period.³⁴ By the end of the Ávila Camacho sexenio in 1946 and the beginning of Alemán's, the United States Tariff Commission ranked the Mexican economy as Latin America's fourth largest in manufacturing.³⁵

Table 2.1: Growth Rate of Industrial Establishments, 1940–1970



Source: Compiled using data in Gustavo Garza Villarreal, *El proceso de la industrialización en la Ciudad de México*, 139–142.

Not surprisingly, Mexico's manufacturing industrial sector produced mainly consumer goods for domestic consumption—a mix of nondurable articles made for immediate use like foodstuffs, textiles or clothing, and paper products; and longer-lasting, higher-cost durable items, such as furniture and household appliances.³⁶ To be sure, nondurable goods represented a sizable and steady share of Mexico's domestic manufacturing activities throughout the entirety of the miracle years. However, by the 1950s,

³⁴ Gauss, *Made in Mexico*, 85.

³⁵ United States Tariff Commission, *Economic Controls and Commercial Policy in Mexico* (Washington, DC: US Government Printing Office, 1946), 6.

³⁶ Among the basic consumer goods listed above, manufacturing industries also produced non-furniture wood products; chemical substances; products derived from carbon or petroleum; plastic; rubber; glass; mineral products; and iron, steel, and metallic products.

new developments in the legislation of protectionist industrialization, the increase in purchasing power among the middle class, and shifts in consumer preferences towards luxury items altered the composition of the country's manufactured products. As the concept of automobility came into fashion and with the expansion of highways and roads, Mexico City became an increasingly motorized city, a situation that aligned with the move to produce more complex finished consumer goods, such as vehicles, to complement an increasingly modern and urbanized lifestyle.³⁷ These conditions, along with the passing of the newly revised industrial development law during Adolfo Ruiz Cortines's presidency (1952–1958), the 1955 *Ley de Fomento de Industrias Nuevas y Necesarias* (Law for the Development of New and Necessary Industries), which abolished import duties on machinery, equipment, and raw materials, set the framework for the rise of an automobile and automobile parts manufacturing industry.

Previously, the smattering of automobile manufacturers in Mexico relied on equipment fabricated in the US, Italy, France, and Germany for their assembly operations. But steep tariffs placed on imports during 1940s-style economic protectionism left Mexico City facing a parts shortage leading to and throughout World War II.³⁸ The scarcity of parts put both the construction and repair of automobiles at risk, sparking a mild panic among some automobile makers and drivers at the thought of extant automobiles falling into a state of disrepair with no ability to replenish stock. In order to prolong the life of automobiles in Mexico City, newspapers printed educational articles to instruct the public on proper automobile care, which included tire rotations every six months and prompt oil changes.³⁹ Indeed, the legal measures introduced by Ruiz Cortines's administration in the 1950s, alleviated some of these concerns, but Nacional Financiera also took measures to encourage in-house production. In 1953 the financing institution awarded various vehicle assemblers 6.6 million pesos in credits, allowing for the

³⁷ Otherwise known as automobility. For an elaboration of this concept, see Freeman, "Transnational Mechanics," 4–5; for more on the development of the automobile manufacturing industry, see Alejandra González Jiménez, "Entanglements: Volkswagen de México and Global Capitalism," (PhD diss., University of Toronto, 2017), 13–18.

³⁸ "Inauguración de una Fábrica de Remaches Para Balatas," *El Excelsior*, December 1, 1959; clipping in 10.01.01, Transporte, 1935–1980, AE, BMLT.

³⁹ "Arreglo de las Ruedas," *El Gráfico*, September 6, 1939, 12; clipping in 10.01.01, Transporte, 1935–1980, AE, BMLT; another article compared normal oil changes to bodily functions, writing that "Air is to human lungs what gasoline is for the automobile motor and, to employ another simile, what the circulation of blood means to the human body, lubrication means to the mechanism of the automobile," see "La Lubricación es la Vida del Automóvil," *El Nacional*, May 24, 1935, 8, clipping in A0.41.98, Automóviles, 1931–1977, AE, BMLT.

automotive manufacturing industry to become one of the fastest-growing.⁴⁰ A decade later, these strategies resulted in an intense concentration of automobile assembly plants in Mexico City and the State of México near the end of the miracle, such that by 1965, Mexico City contained 4,022 establishments dedicated to the manufacture of automobiles and related parts, or 35 percent of the country's total.⁴¹ Of these, Ford de México, already in Mexico City for two decades by the mid-twentieth century, flourished under such economic conditions and their vehicles began meeting a hungry domestic middle-class consumer demand.

Government concessions to the automobile industry spurred the proliferation of other automobile manufacturing-adjacent businesses in the capital, such as the Los Angeles-based automobile painting and repair company Earl Scheib, a discount autobody painting and collision repair provider known widely across the US. Earl Scheib elected Mexico City as the location of its first international painting plant in November of 1952.⁴² Likewise, newspapers celebrated the opening of Manufacturera FYG, S.A., a company that made rivets for brake pads, in December of 1959. *Excelsior* even endorsed Manufacturera, asserting that “The inauguration of this plant was considered by various industrialists as absolutely beneficial for our economy and for Mexican automobility.”⁴³ By the 1960s, the automobile manufacturing sector was valued at 6.9 million pesos, but Mexico City alone contributed 4 million of the total national value. Combined with the State of México, the two entities represented an even larger share, accounting for 75 percent of the entire value at the national level, and together generated 5.2 of the 6.9 million pesos.⁴⁴

The surge in industrial establishments, which produced goods ranging from cigarettes to rayon to fishing nets to automobiles, created an overwhelming demand for labor in urban areas. In the case of

⁴⁰ Nacional Financiera, S.A., *Informe Anual* (México, DF, 1954), 58–62; United States Department of Commerce, Bureau of International Commerce, *A Market for US Products in Mexico* (Washington, DC: Government Printing Office, 1966), 8.

⁴¹ University of Texas at Austin Bureau of Business Research, “Manufacture of Automobiles and Parts, 1965,” in *Atlas of Mexico* (Austin: University of Texas at Austin, 1975), 145.

⁴² “World’s Largest Auto Painters Add Mexico,” *Los Angeles Times*, October 26, 1952, B13.

⁴³ “Inauguración de una Planta.”

⁴⁴ Dirección General de Estadística, *VIII Censo Industrial*, 1966.

Mexico City, cityward migration from rural areas fed the openings in the labor market at the expense of the declining agricultural sector. In 1949, the United Nations Economic Commission for Latin America's economic survey of Mexico calculated that the "value added by an industrial worker was about ten times greater...than that of an agricultural worker."⁴⁵ Their statement reflected an overall upward trend in employment in the manufacturing sector, which had witnessed a modest increase from 1900 to 1940, when the number of industrial workers in Mexico City and the surrounding delegaciones of the surrounding Federal District rose from 74,561 to 175,352.⁴⁶ In the next decade, however, census records indicate that a staggering 286,620 people were employed by the manufacturing sector alone in Mexico City compared to other industrial branches in which 5,615 people worked in extractive industries, 62,923 in construction, and another 8,117 in the electricity and gas sectors (**Table 2.2**). This meant that 30 percent of the nation's total industrial manufacturing workforce was concentrated in the capital.⁴⁷ Furthermore, during this decade, an extra 7,094 people looked for work in the goods-producing industry, easily the most sought-after source of employment. No other sector came close besides the service industry, in which 3,468 people desired to find employment in the 1950s. While hourly wages rose for industrial workers in Mexico City, an additional dimension in the success of the Mexican Miracle was the government's strategic maneuvering of labor politics through a "joint strategy of co-optation and repression," which assured that labor unrest and other "nonelectoral threats to the system" did not

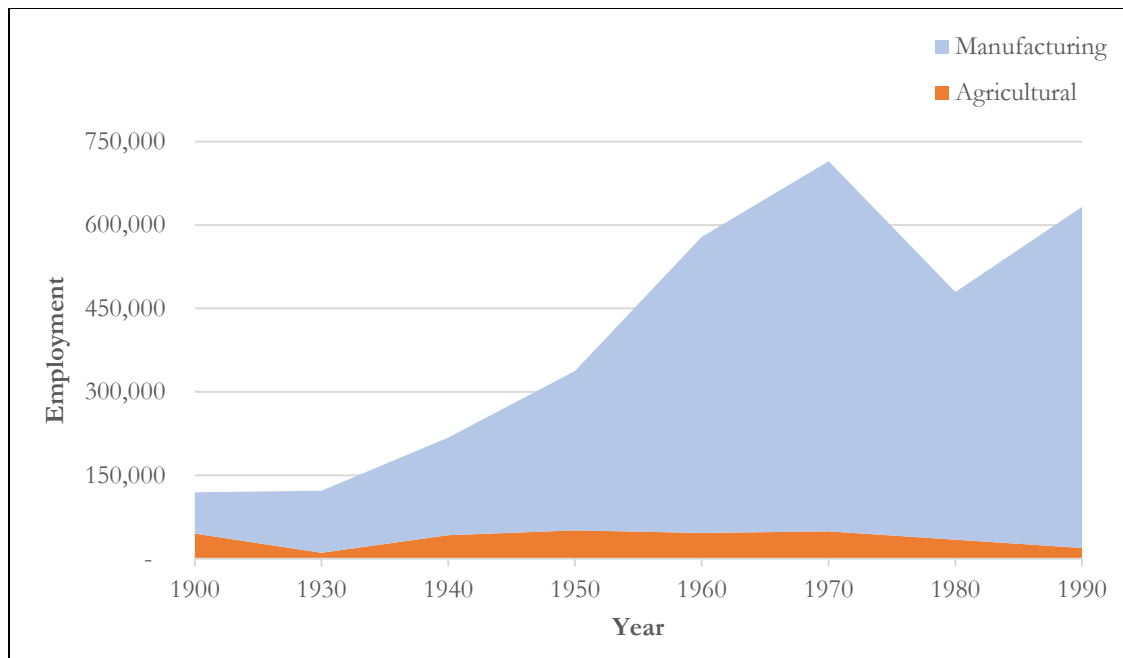
⁴⁵ United Nations Economic and Social Council, Economic Commission for Latin America, *Economic Survey of Latin America, 1949: Industrial Development of Mexico, Annex K*, Report, May 1, 1950, 1–3, E/CN.12/164, Anexo K, Economic Commission for Latin America and the Caribbean [hereafter ECLAC]. Established in 1948, the Economic Commission for Latin America expounded economic development theories for the region within the context of the power dynamics that have historically characterized the relationship between developed and developing nations, such as that between the US and Latin American countries. Its director, Raúl Prebisch, popularized import-substituting industrialization, though, as Sarah Babb has explained, in Mexico similarly interventionist policies predated and "were basically in keeping with" the commission's directives, see Babb, *Managing Mexico*, 77.

⁴⁶ Dirección General de Estadística, "Población Clasificada según el Sistema Bertillon," *Censo General de la República Mexicana*, 1900; Dirección General de Estadística, "Características de la República, por Estados,—Resumen General," *Sexto Censo General de la Población*, 1940. From 1900 to 1940, census records did not distinguish between the different industrial branches, and instead used the ambiguous classification of "industrias" for those employed across the different sectors. Thus, these early figures may overstate the actual number of workers employed only in manufacturing. Later censuses differentiate between industries, and use the term "industrias de transformación" to delineate the manufacturing industry.

⁴⁷ For 1950 figures, see Dirección General de Estadística, *Séptimo Censo General de la Población*, 1950. Other branches of industry included the extractive industry, construction, and electricity and gas.

destabilize the pace of industrial development.⁴⁸ Mexico thus entered into its second decade of statist developmentalism with its economy transitioning from agricultural to industrial; its capital city, and the workforce therein, largely industrialized; their labor modernized; and the city’s purchasing power amounting to 30 percent of the entire nation.⁴⁹

Table 2.2: Mexico City Workforce (Manufacturing Industrial vs. Agricultural Sector), 1900–1990



Source: Data obtained from Dirección General de Estadística, *Censo General de la Población* for 1900–1990.

By 1955, the beginning of the “golden age of Mexico’s modern economic growth,” the government’s accelerated industrialization experiment had built Mexico City into the nation’s economic motor.⁵⁰ However, the agglomeration of industrial plants, refineries, automobiles, and trucks in the

⁴⁸ As mentioned earlier, the problem of inequitable income distribution persisted in Mexico during these decades of economic growth, but Mexico City’s industrial labor force “benefitted absolutely,” as factory labor paid higher wages than agricultural. See Babb, *Managing Mexico*, 80, fn. 3, 248; for more on the relationship between the state, industrialists, and labor in Mexico City, see Gauss, *Made in Mexico*, 184–192.

⁴⁹ US Department of Commerce, *A Market for US Products*, 18.

⁵⁰ Moreno-Brid and Ros, *Development and Growth in the Mexican Economy*, 107. This phase lasted through the end of the Mexican Miracle in the late 1960s and early 1970s.

capital incited disquietude among a select few Ministry of Labor officials who claimed that the fumes from these sources posed dangers to human health, especially to the bodies of the workers and residents of industrial areas in the northern delegations.⁵¹ A larger group, more worried about regional disparities in Mexico's industrial development than the health of factory workers, called for the deindustrialization of Mexico City.⁵² In an attempt to mitigate the industrial imbalance, the government subsequently curtailed credit subsidies and tax breaks for businesses that wished to set up shop in Mexico City, redirecting resources through the Fondo de Garantía y Fomento a la Industria Mediana y Pequeña (Fund for the Promotion and Guarantee of Medium and Small Industry), launched in 1953 under the umbrella of Nacional Financiera, to companies that resolved to develop small- and medium-scale industries in areas without a strong industrial presence.⁵³ Despite these restrictions, prospective enterprisers found they would not have to stray too far away from city limits. Unaffected by the cutbacks, neighboring municipalities in the State of México became increasingly attractive destinations for new industry. Although Mexico City had begun to suburbanize in the early 1920s and would, by the mid-twentieth century consolidate the Federal District and these surrounding counties into a newly imagined metropolitan zone, these municipalities remained technically outside of the bounds of the deindustrialization initiative.⁵⁴ This oversight kept the industrialization program afloat and helped businesses remain in close proximity to the nation's capital.

⁵¹ "Smog in Mexico City, Too," *The Boston Daily Globe*, December 12, 1956, 19; Ed Ainsworth, "Are We Breathing a New Smog?" *Los Angeles Times*, November 9, 1955, A5; Natalia Verónica Soto Coloballes, "La medición de la calidad del aire y la retórica de sus gestores," in *Cambio climático, ciudad y gestión ambiental: Los ámbitos nacional e internacional*, ed. José Luis Lezama (Ciudad de México: Colegio de México, 2018), 425.

⁵² Unikel, *El desarrollo urbano*, 312.

⁵³ "Ley que Crea el Fondo de Garantía y Fomento a la Industria Mediana y Pequeña," *Diario Oficial de la Federación*, December 30, 1953; see also Ward, "Mexico City," 31. Relative to large-scale industries, small- and medium-sized industries have less capital investment, employ fewer people, use manpower rather than machinery, and manufacture less complex products, see Fondo de Garantía y Fomento a la Industria Mexicana Mediana y Pequeña, de la Nacional Financiera, S.A., *La pequeña industria en México*, Report, ST, ECLA, Conf. 25, Leg. 19, October 1966, 8–17.

⁵⁴ In 1924, Reid noted that "many very modern and beautiful residences have also been built in recent years, both in the city proper and the suburban districts," see Reid, *Mexico City*, 23. Although industries stayed within the vicinity of Mexico City proper, the city of Toluca, located some 65 kilometers west of Mexico City, "gained several important, new manufacturing plants," as a result of deindustrialization initiatives in Mexico City, see US Department of Commerce, *A Market for US Products*, 18.

Another deindustrialization tactic was the creation of industrial parks, a planned zoning of industrial development. A late-nineteenth-century invention, industrial “estates” were a way of “organizing, housing, and servicing industry” in suburban locales, and were first adopted by cities in western Europe and the US.⁵⁵ Industrial districts, by design, were well-served by important amenities such as waste management, electricity, water or steam power, a road or highway network, and rail transportation. Private companies commonly owned and operated early industrial parks in the United Kingdom and the American Midwest, though the federal governments of Italy and Great Britain began acting as developing agencies in the early 1900s and the post-World War II era, respectively. In Mexico, a collaborative effort between President Alemán’s administration; the country’s financing arm, Nacional Financiera; Constructora Industrial Irolo (Irolo Valley Industrial Construction), a nonprofit public service company established solely for industrial park creation; and the private sector gave rise to the first “artificial city” in October of 1952.⁵⁶ Ciudad Industrial Bernardino de Sahagún, located in the Tepeapulco municipality of the State of Hidalgo about 100 kilometers northeast of Mexico City, was the first of four industrial parks constructed in the 1950s. In its nascent stage, Ciudad Sahagún was a kaleidoscope of three industrial manufacturers: an automotive parts producer, a rail vehicle manufacturing business, and a textile machinery company, as well as an extant 7,000 residents.⁵⁷ The government hoped to entice

⁵⁵ Trafford Park Estates in Manchester, England, the “Mother of Industrial Estates,” became the first industrial park in 1896, and Chicago’s Clearing Industrial District followed closely thereafter in 1899. The “institutional technique” of the industrial estate was also “outstandingly successful” in Puerto Rico by 1950. See United Nations, Department of Economic and Social Affairs, *Establishment of industrial estates in under-developed countries* (New York: United Nations, 1961), 1; William Bredo, Stanford Research Institute, International Industrial Development Center, *Industrial estates: tool for industrialization* (Glencoe, IL: The Free Press, 1960), xi, 1, 14–15.

⁵⁶ Constructora Industrial Irolo was created by the government to administer public services to Ciudad Sahagún. The Comisión Federal de Electricidad (Federal Electricity Commission) serviced other industrial cities throughout Mexico, see Bredo, *Industrial estates*, 181; Unikel, *El desarrollo urbano*, 312–313.

⁵⁷ Ciudad Sahagún had capacity for 60,000 inhabitants, see UN, *Establishment of industrial estates*, 27; Unikel, *El desarrollo urbano*, 313. Other industrial parks included the 1957 Ciudad Industrial de Irapuato in the State of Guanajuato (350 kilometers from Mexico City) and Zona Industrial Lagunera in the State of Durango (355 kilometers from Monterrey, Mexico’s second-most concentrated industrial city to the north). The latter two found greater initial success compared to Ciudad Sahagún. For more on Ciudad Sahagún, see Abel Ricardo Flores, “Entre el boom económico y el declive industrial,” *Plaza Juárez.MX*, October 30, 2017, <http://www.plazajuarez.mx/index.php/region/item/68111-entre-el-boom-economico-y-el-declive-industrial>; Monika Struele, “Tracing the Developmentalist Regime of Productivity: Nation, Urban Space, and Workers’ Habitat in Mexico City, 1940s–1970s,” in *Histories of Productivity: Genealogical Perspectives on the Body and Modern Economy*, eds. Peter-Paul Bänzinger and Mischa Suter (New York: Routledge, 2017), 156–173.

businesses and transform Ciudad Sahagún into an industrial hotspot by providing generous twenty-five-year corporate income tax exemptions and an 80-percent discount on property taxes. Nevertheless, the town remained an “unfavorable location” for some businesses due to insufficient access to “communications, supply of raw materials, and marketing of products.” Ciudad Sahagún would not become a “center of exchange and national consumption” until the late 1950s.⁵⁸ Mexico found more instantaneous success in other areas like the States of Guanajuato and Durango, however, and pursued the industrial park model as a national planning strategy.⁵⁹

Government involvement in economic development, through the legislation of tax breaks, credit subsidies, and other protectionist measures taken to aid private domestic and foreign businesses; the popularity of Mexico City as the seat of national progress; and massive rural-to-urban migration all nourished the burgeoning industrial sector in the mid-twentieth century. State-crafted political and economic nationalism converged during the Mexican Miracle, as Mexican laborers produced Mexican goods for Mexican consumers. The mexicanization of the economy, which was historically based on agricultural exports and the importation of most consumer goods, was in full swing only a few years after Manuel Ávila Camacho, Mexico’s enthusiastic proponent of industrialization, took office in 1940. For example, during the 1920s, or pre-ISI, on average, 58 percent of all domestic manufacturing went to domestic markets, but by 1942, this figure soared to 81 percent. Throughout the Ávila Camacho sexenio, domestic manufacturing as a percent of domestic supply hovered at a strong 78 percent before falling to an average 65 percent during the successive presidency of Miguel Alemán Valdés.⁶⁰ At least in Mexico City, state-sponsored industrialization had, by the late 1960s, succeeded in carrying out its two-pronged plan of action. These goals, as described by the Mexican government in a 1966 UN conference on urban

⁵⁸ In these cases, a larger industrial workforce and consumer demand, as well as state government assistance in procuring raw materials and marketing manufactured items made the difference, see UN, *Establishment of industrial estates*, 27. Ricardo Pozas A., “El proceso urbanístico en Atlixco y en ciudad Sahagún,” (Speech, United Nations Educational, Scientific, and Cultural Organization, Seminario sobre problemas de urbanización en América Latina, Santiago de Chile, April 29, 1959), E/CN.12, URB 22, ECLAC.

⁵⁹ For more on Mexico’s industrial park experience, see Gustavo Garza, “Towards a National Strategy of Industrial Estates in Mexico,” (PhD diss., Cambridge University, 1973).

⁶⁰ UN Economic and Social Council, *Economic Survey of Latin America*, 16.

development, included the “strengthening of economic freedom,” on the one hand, and on the other, obtaining a “comprehensive [economic] diversification to generate employment and income to the extent necessary to counteract the effects of the population explosion.”⁶¹ On the ground, factories like Ford’s Mexico City production facility did more than manufacture goods; they were engrained into the fabric of urban life as important transmitters of economic nationalism and modernity. By the mid-twentieth century, factories even spurred the local consumption of goods, particularly modern machines such as automobiles, which profoundly transformed the look and feel of the Mexican capital.

Ford Comes to Mexico: A Case Study of Beginnings and Belonging

Transportation is the lifeblood of international growth. Raw materials must go from mines to factory; finished products from factories to consumers; consumers from home to job or from home to market. [Automobiles] have served the farmer, the shipper, the consumer (who uses his car for business, vacation, and shopping...), and through their services have remade the modern social fabric...the motor car is the indispensable unit for all lands that are building economic strength.

Ford...put the world on wheels...

Mira Wilkins and Frank Ernest Hill, *American Business Abroad*, 1964⁶²

On May 21, 1921, E.L. Torres of Mixcoac, a municipality of the Federal District of Mexico, wrote to Henry Ford, inquiring about the rumored automobile and tractor factory that Ford was said to have desired to set up somewhere in Mexico. Although the primary purpose of his letter was to seek confirmation of Ford’s intentions, he nonetheless offered up the state of Zacatecas as a contender. “I could probabl[y] furnish you ground enough for your factory along the lines of Central Railroad in the state of Zacatecas, in the very heart of my country, and where the labor is cheap,” he proposed, “but I

⁶¹ Gobierno de México, *El desarrollo industrial de México*, report, ST, ECLA, Conf. 23, Leg. 38, February 9, 1966, 1.

⁶² Mira Wilkins and Frank Ernest Hill, *American Business Abroad: Ford on Six Continents* (Detroit: Wayne State University Press, 1964), 430, 355. *American Business Abroad*, an in-depth look into the history of Ford Motor Company and one of the only works to place Ford in a global context, has encountered a second life as a result of its 2011 republication by Cambridge University Press.

need to know first if you really intend to establish a new factory here.”⁶³ No stranger to international expansion—Ford had already put down roots in Canada in 1904 and Paris in 1908, only one and five years after its inauguration in Michigan, respectively—Ford had previously entertained the prospect of establishing a branch in Mexico in 1910. Escalating popular discord against Porfirio Díaz’s dictatorship, however, rendered the country an undesirable setting for the first Latin American plant, a designation that Buenos Aires, Argentina holds after the creation of a division there in 1913 and the commencement of assembly operations in 1917.⁶⁴ Ford’s entrance into the Mexican market thus happened in fits and starts, as matters of financing, location, and internal upheaval stalled planning at various points along the way in the early 1900s.⁶⁵

The drawn-out nature of bringing Ford de México to fruition aroused curiosity and competition from Mexican businessmen willing to facilitate Ford’s endeavor, giving credence to an insight made in an investment outlook report by the US Department of Commerce’s American Republics Division that “[o]ne of the outstanding characteristics of post-revolution Mexico has been the growth of the spirit of business enterprise.”⁶⁶ Torres was thus hardly the only or the first person curious and enterprising enough to reach out to the rising automotive pioneer. In March of the same year, construction engineer Richard C. Bateman sent a letter to Henry Ford announcing his “desire to get taken up with some energetic capitalist.” Bateman had gained a concession of water along the grand Balsas River, a major waterway in south central Mexico that cuts across the states of Puebla, Morelos, México, Guerrero, and Michoacán from east to west. According to Bateman, the water supply had a maximum 75,000-

⁶³ E.L. Torres to Henry Ford, Correspondence, May 21, 1921, Acc. 285-14-6, Box 14, Henry Ford Office Papers, The Benson Ford Research Center [hereafter BFRC], The Henry Ford, Dearborn, Michigan. Ford acknowledged receipt of this offer, but reported that the prices of water power properties was “entirely out of proportion than we feel justified in paying” to set up shop in Zacatecas, see Ernest G. Liebold to Torres, Correspondence, June 1, 1921, Acc. 285-14-6, Box 14, Henry Ford Office Papers, BFRC.

⁶⁴ Wilkins and Hill, *American Business Abroad*, 40, 56–57. After Argentina, Ford came to Brazil in 1919 and Chile in 1924, see “Appendix 2. Ford’s Automotive Foreign Operations” for a full list, 434–435.

⁶⁵ In 1921, Ford stated that “Mexican development at present is somewhat delayed [but] we hope sometime in the future to take up the matter again,” see General Secretary to Henry Ford and Ernest G. Liebold, Correspondence, Acc. 285, Box 14-6, Henry Ford Office Papers, BFRC. In late July of 1922, Ford still had not decided on a location for his future plant, though they had dispatched a representative to make a “complete survey of the country” by then. See Edsel Bryant Ford to Lee R. Blohm, Correspondence, July 22, 1922, Acc. 6, Box 5-A, Edsel B. Ford Office Papers, BFRC.

⁶⁶ US Bureau of Foreign Commerce, *Investment in Mexico*, 13.

horsepower capacity, more than sufficient to power the factory in question. A twenty-eight-year resident of Mexico, Bateman sent out his request with a list of ten of Mexico's most attractive features, which he presumed might entice someone "interested in placing the automobile industry here [in Mexico]." These included an abundant supply of timber, metals, an "unusually healthy" climate, and a direct rail to Mexico City.⁶⁷ Earlier still, on December 14, 1920, in a letter to Ford, an M. Gutierrez Urquiza recalled his 1918 visit to Dearborn and his meeting with Ford himself. Gutierrez reminded Ford that he laid claim to a 7,000-horsepower waterfall intersecting the borders of Guanajuato, Jalisco, and Michoacán and 150 acres of land with multiple rail stations interspersed throughout, a package he deemed worthy of Ford's investment.⁶⁸ Both petitioners offered up locations in central Mexico, near Mexico City, and both followed a similar pattern to make a convincing case for their respective regions.

Solicitations continued into 1922. By then, state and municipal officials joined the crowd of hopefuls. For example, in July of that year, the governor of Aguascalientes, Rafael Arellano Valle, supported by the American Consul to Mexico, Lee R. Blohm, cast a bid for the capital city of Aguascalientes, another central Mexican city, to become the future site for the still-unofficial factory. In the letter, written by Blohm on behalf of the governor, he enumerated eight factors that contributed to the "advantageous features of [Aguascalientes] for such an industry," including railway transport, water supplied by hot springs, the low cost of living, proximity to an "agricultural district to feed employees, no serious labor disputes," and a pre-existing American presence in the form of the American Smelting and Refining Company.⁶⁹ Aguascalientes, Blohm concluded, "is recognized throughout Mexico as one of the most peace-loving [states] and boasts one of the strongest state governments guaranteeing full protection to both lives and property of foreign investors" with "no state tax required for the establishment of new

⁶⁷ Richard C. Bateman to Henry Ford, Correspondence, March 7, 1921, Acc. 285, Box 14-6, Henry Ford Office Papers, BFRC.

⁶⁸ M. Gutierrez Urquiza to Ernest G. Liebold and Henry Ford, Correspondence, December 14, 1920, Acc. 285, Box 14-5, Henry Ford Office Papers, BFRC.

⁶⁹ Lee R. Blohm to The Ford Motor Company, Correspondence, July 7, 1922, Acc. 6, Box 5-A, Edsel B. Ford Office Papers, BFRC. The increase in requests led Ford to send out automated responses confirming receipt, see Ernest G. Liebold to Norman E. Galentine, Correspondence, April 26, 1921, Acc. 285, Box 14-6, Henry Ford Office Papers, BFRC; Ernest G. Liebold to M. Gutierrez Urquiza, Correspondence, December 24, 1920, Acc. 285, Box 14-5, Henry Ford Office Papers, BFRC.

industries.”⁷⁰ While it adhered to a similar format as previous appeals, the governor’s letter also made plain the depth of experiences of state-sponsored industrialization in Mexico, as Aguascalientes appeared to be ahead of the curve of the twentieth-century state-supported industrial turn.

When Ford Motor Company finally arrived in Mexico in 1925, it was in the presence of European automobile producers, known as the “aristocracy of the motor world” because they embodied and promoted luxury, indulgence, painstakingly fine craftsmanship, and bred exclusivity in their consumer base.⁷¹ To be sure, motor vehicles like the Ford Model Ts and As (the latter model, released in 1928, was the latest version of Ford vehicles at the time) were “principal imports” at the time and had already penetrated the Mexican automobile market.⁷² Mexican roads were thus not bare; Ford vehicles readily coursed through Mexico City’s streets by the time Ford established a Mexican branch, and represented just over one-third of total car ownership in Mexico City in April 1925.⁷³ But Ford’s early reputation as an affordable alternative to the highly-sought-after French and German motor vehicles with which elite Mexicans were already familiar presented a challenge at the outset.⁷⁴ Clever marketing tactics and a democratization of the consumer base due to the success of ISI in the mid-twentieth century rewired popular perceptions of Ford vehicles, allowing Ford’s comparatively lower prices to work in its favor, a phenomenon analyzed in depth in the next section. Representative of its unpretentious approach to business, operations in Mexico began humbly in a “small shop” on a large, empty lot in the San Lázaro

⁷⁰ Blohm to Ford Motor Company, Correspondence, July 7, 1922.

⁷¹ Wilkins and Hill, *American Business Abroad*, 8–9. The Italian automobile manufacturer Fiat was an extremely popular brand; by 1904 there were more than 100 Fiat vehicles in Mexico. As one advertisement read: “Fiat is the automobile that is made with the best material...its cars have triumphed over the most important roads in the world, and in recent years, against famed American and European brands,” see “Automóviles Fiat: hechos comprobados valen más que palabras fantásticas,” *Pan-American Magazine* 8 no. 1, May 1909, xiii.

⁷² US Department of Commerce, Bureau of Foreign and Domestic Commerce, *Commercial Travelers’ guide to Latin America, Part III: Mexico, Central America, and Caribbean Countries* (Washington, DC: US Government Printing Office, 1940), 37.

⁷³ *El Automóvil de México*, May 1925, 12, cited in Wilkins and Hill, *American Business Abroad*, 147, fn. 19.

⁷⁴ The moving assembly line drastically reduced the production time of chassis from 12.5 to 1.5 hours, allowing Ford to charge lower prices in the early years, “Our History: Ford Motor Company Timeline,” Ford Motor Company, accessed October 12, 2019, <https://corporate.ford.com/history.html>. In the next decades, however, “...the Ford company had so far departed from Henry Ford’s original concept [of low-priced but high-quality cars] that nowhere in the world...were Ford cars the lowest-priced vehicles offered for sale.” To make matters worse, in Mexico, costs were often 50 to 100 percent greater, owing primarily to Mexico’s inefficient machinery and technology, thus explaining the high cost of importing parts required for assembly. Wilkins and Hill, *American Business Abroad*, 356.

neighborhood, located in the center of Mexico City (**Figure 2.3**). The factory had a daily production capacity of twenty-five units per day and employed 250 people, who were managed by the politically well-connected Mexican businessman Adrián René Lajous, an essential intermediary for Ford de México in the early stages because he helped the automobile magnate secure massive credit subsidies, low customs rates, and oversaw labor issues.⁷⁵



Figure 2.3: Humble Beginnings, Ford de México, 1926. Photograph of Ford de México, S.A., 1926, Acc. 833, Box 1, Folder 2B, Photoprints: Foreign Branches Latin America (Argentina–Uruguay) and Canada, BFRC. Photograph used with permission from The Henry Ford, Benson Ford Research Center.

⁷⁵ Ford Motor Company, S.A., *Ford 1952*, unpublished scrapbook, Acc. 964, Box 1, Ford Motor Company S.A. (Mexico) Public Relations Series, BFRC. In the initial planning stages, Lajous used his connections to Presidents Calles and Emilio Portes Gil (1928–1930, recognized as one of Calles’s puppet presidents), to arbitrate on behalf of Ford throughout his tenure as Managing Director. For more on the intersection of labor and politics during the immediate post-revolutionary era, see William J. Suarez-Potts, *The Making of Law: The Supreme Court and Labor Legislation in Mexico, 1875–1931* (Stanford: Stanford University Press, 2012).

Ford was among multiple US manufacturing companies to open Mexican branches during the 1920s and 1930s. Others included General Motors and Chrysler. Existing industrial facilities produced simple consumer goods, such as pharmaceutical products, electrical and other home appliances, furniture, and food products, or engaged in the railway construction and mining industries.⁷⁶ In the absence of a domestic automobile industry, however, Ford offered something new to the market.

In a June 1930 telegram, Edsel Ford, son of Henry Ford and president of Ford Motor Company since 1919, disclosed that Ford Motor Company was “agreeable to immediate expansion.”⁷⁷ While other Latin American branches performed well and overshadowed the Mexican branch in the late 1920s, Mexico was the only country to experience this infrastructural growth in the 1930s during the economic disruption brought on by the Great Depression.⁷⁸ To be sure, post-revolutionary Mexico was not immune to depression-era cutbacks and economic slowdowns, but it was relatively more stable than other Latin American countries undergoing revolution and unrest, such as Brazil, where Ford had a historically profitable branch. The new assembly plant opened on September 14, 1932, replacing the older 1926 establishment. Colonia Industrial of the Gustavo A. Madero delegation, located on the northern tip of the Federal District, housed the Ford factory until its 1984 closing. Founded in 1926 and originally conceived as a middle-class neighborhood, Colonia Industrial instead became a nucleus of industry by the 1930s, with Ford acting as the catalyst.⁷⁹ Within the colonia, Ford de México was located on a conspicuous 34.54 acres of land, 2.5 miles away from the Zócalo between Avenida Henry Ford and Calzada de Guadalupe, a culturally significant roadway that runs through the heart of historic Mexico City and leads to Tepeyac Hill and the Basilica de Guadalupe. At the same time that it consumed space, the Ford de México campus, which grew to house impressive employee facilities such as a football field and a

⁷⁶ US Bureau of Foreign Commerce, *Investment in Mexico*, 61.

⁷⁷ Edsel Ford to John Crawford, telegram, June 17, 1930, Acc. 6, Box 183, Edsel B. Ford Office Papers, BFRC. Another plant expansion occurred in 1949, see Contract, Constructora Técnica, S.A., August 6, 1948, Acc. 714, Box 4, Folder C-52, Correspondence Subseries, 1945–1948, BFRC.

⁷⁸ Wilkins and Hill, *American Business Abroad*, 244.

⁷⁹ Perla E. Castañeda Archundia, *Cómo influye el Programa Delegacional de Desarrollo Urbano Gustavo A. Madero en materia de patrimonio cultural urbano y movilidad sostenible en la Colonia Industrial* (México, DF: n.p., 2015), 6. From 1935 to 1950, the Gustavo A. Madero delegation experienced a 567-percent increase in industrial establishments, from 2,460 to 16,420 facilities. For more information, see Enrique Espinosa López, *Ciudad de México: Compendio cronológico de su desarrollo urbano, 1521–1980* (México, DF: n.p., 1991).

baseball diamond, also *produced* a distinctly modern iteration of that space.⁸⁰ The 240,000-square-foot, three-building plant (**Figure 2.4**) was capable of producing between seventy and eighty units daily, though actual figures during the early years of operation fluctuated, averaging to about fifty to seventy units.⁸¹

Productivity was a measure of the economic value that Ford brought to Mexico—indeed, one of the stated purposes of industrialization according to the Segundo Plan Sexenal was to “create a larger number of proletarians to whom to impart full justice...and [thus] avoid[ing] through practical means the misery and sufferings which [economic] insecurity represents to the laboring classes.”⁸² But value was also communicated culturally and symbolically. Mid-century aerial photography and design sketches of the Ford de México grounds, with its manicured lawns, tree-lined avenues, smoking chimneys, and acres upon acres of open space indicating a yet-to-be-realized development, comprised, in the words of urban studies scholar Maroš Krivy, the “visual support for monumentalising [*sic*] the future city.”⁸³ Ford’s 1930s expansion presaged the industrialization of the city, as an early-1930s advertisement put out by the

⁸⁰ Observation from factory visit, see Shirley F. Woodell, J. Walter Thompson Company to Fred Fleishman, Ford Motor Company, Correspondence, April 18, 1951, Box 2, Folder 1, Office Files and Correspondence Series, 1943–1958, J. Walter Thompson Archives [hereafter JWT], David M. Rubenstein Rare Book & Manuscript Library [hereafter RRBML], Duke University, Durham, North Carolina.

⁸¹ The plant site included a main building used for passenger car and truck assembly, a 2,600-sq.-ft. power house for power distribution to the main building/general plant, and a 3,450-sq.-ft. oil house for handling oils and other liquids used in the main plant. “Ford Motor Company as of September 1932,” Report, September 9, 1946, Acc. 524, Box 10, Folder 10, Branches, Mexico City & Latin America Series, BFRC. According to Wilkins and Hill, Ford factory workers carried “bouquets of flowers, musical instruments, lanterns, balloons, lighted candles, to pay their tribute to the Virgin,” and make annual pilgrimages, see Wilkins and Hill, *American Business Abroad*, 244. Estimates for daily production capacity vary. Wilkins and Hill have claimed that the new factory could produce 100 units daily, though they do not give a citation that corroborates this information, see Wilkins and Hill, 244. Contemporary newspaper accounts, on the other hand, claim that the estimated daily production capacity was actually eighty, see “New Instalations [*sic*] Inaugurated by Ford Motor Co., Here,” *The News*, March 21, 1952. A 1958 report issued by the Ford Purchasing Office indicates that seventy units could be produced daily, see “International Division Overview, 1958, Mexico City,” Report, Ford Motor Company Purchasing Office, Acc. 1942, Box 2, International Division Purchasing Office Records, 1947–1962, BFRC. Daily production figures from Ford de México during the first years of its operation show that rarely was this production capacity met, see “Interim Production, Time, and Cost Report,” 1934–1935, Acc. 206, Box 5, General Accounting Interim Reports Series. Bi-weekly figures are listed, making the total production count appear much lower upon first glance, but one must also keep in mind that Ford’s manufacturing plant only operated two to three days of the work week at this stage.

⁸² PRM, “Division General Manuel Avila Camacho’s address,” *Segundo plan sexenal*, 11.

⁸³ Maroš Krivy, “Industrial architecture and negativity: the aesthetics of architecture in the works of Gordon Matta-Clark, Robert Smithson and Bernd and Hilla Becher,” *The Journal of Architecture* 15, no. 6 (2010): 831. Drawing from Lefebvre, Krivy proposes the idea of the factory as a “monumental image,” that both “unif[ies] a city around a set of meaningful values” and “communicate[s] these values.” See pg. 828, 831.

Colonia Industrial Association indicated. “This will be the new site of the Automotive Factory of Ford Motor Co. in the Manufacturing Zone of this Colonia,” trumpeted the ad, which displays an illustrated birds-eye view of the expansive facility.⁸⁴ Rising from a geography of residential homes and industrial architecture, the Angel of Independence gestures towards the structure while the smoke from the factories positioned in the background coils around her flowing robe, literally becoming the essence of the angel itself. Ford de México, as conceived in local advertising of the time, became a monument to national progress—it was “both an expression of an idea of a collective future and a tool for the speculative realization of this idea.”⁸⁵



Figure 2.4: Expansion of Ford de México Plant, 1932. Photograph of Ford de México, S.A., 1935, Acc. 833, Box 1, Folder 2B, Photoprints: Foreign Branches Latin America (Argentina–Uruguay) and Canada, BFRC. Photograph used with permission from The Henry Ford, Benson Ford Research Center.

⁸⁴ Advertisement appears on cover of Castañeda Archundia, *Cómo influye el Programa Delegacional*.

⁸⁵ Krivy, “Industrial architecture and negativity,” 831.

As the economic miracle came into its own, the Mexican branch matured into a highly productive assembly operation, despite the federal government's imposition of quotas and import freezes in 1947, a protectionist measure that aimed to keep ISI afloat as international markets stabilized post-World War II.⁸⁶ In 1948, for example, the Assistant General Manager at the time, A.H. Masset, wrote that "[t]he productivity of our Plant has increased noticeably, so much so that it is outstripping our sales possibilities," and on another occasion, he described the "insatiable demand for our products by the public," even as Ford faced stiff price competition from G.M. and Chrysler.⁸⁷ In 1949, Masset once again described a "brilliant increase" in the "demand for our product."⁸⁸ In their assessment of Ford's international performance, Mira Wilkins and Frank Ernest Hill, authors of one of the most comprehensive studies of the Ford Motor Company and its global presence, have pointed out that Ford's "successes abroad were in countries highly developed industrially or in those which were in the 'take-off' period, that is, one in which old blocks and resistances to steady growth were being overcome."⁸⁹ Although Ford was an early player in the rise of Mexico's automotive manufacturing industry—indeed, some reporters called it the "precursor of the automobile industry," and Ford even assumed this nickname in its mid-twentieth-century advertising material—it did not blossom until overarching political and economic conditions aligned, or, in other words, until Mexico perfected its statist model of development.⁹⁰ For example, from 1939 to 1945, a period that coincided with the rise of the economic

⁸⁶ Indeed, the 1947 luxury tax, at a steep 20 percent; import freeze; production quotas; and 15-percent state-mandated price reductions worried the Mexican branch greatly, as it was already facing intense competition from other US automobile manufacturers like G.M. The Assistant General Manager during the 1940s charged that "...a 20 percent surtax on the present high priced [*sic*] automobiles will probably remove them completely from the reach of the public." Although he mentioned that the government was not encountering much success in combatting high prices, he also stated that the "Mexican government is doing everything possible to make the sale of imported articles [both parts necessary for automobile assembly and lower-priced US-made cars] so unattractive to the Mexican public that the demand for exchange of these articles will vanish as the sales themselves will disappear." See A.H. Masset/Ford de México, S.A., to Dearborn Headquarters, "Monthly Letter," September 9, 1948, Acc. 712, Box 21, Folder 21-1, Correspondence Subseries, 1921–1948, BFRC.

⁸⁷ A.H. Masset/Ford de México, S.A., to Dearborn Headquarters, "Monthly Letter," Report on Operations, October 8, 1948, Acc. 712, Box 21, Folder 21-1, Correspondence Subseries, 1921–1948, BFRC.

⁸⁸ A.H. Masset/Ford de México, S.A., to Dearborn Headquarters, "Monthly Letter," Report on Operations, January 10, 1949, Acc. 712, Box 21, Folder 21-1, Correspondence Subseries, 1921–1948, BFRC.

⁸⁹ Wilkins and Hill, *American Business Abroad*, 29.

⁹⁰ "Ampliación de la Ford," *Mañana*, March 29, 1952.

miracle, Ford de México operated on yearly profits, a performance unmatched by other Latin American branches at the time.⁹¹

Through an intricate production system and the know-how of factory laborers, the Ford plant churned out automobiles and automobile parts for export and internal consumption. In the latter regard, the Fordist worker-consumer model uniquely aligned with the Mexican government's protectionist stance that workers should also become consumers of Mexican-made products. The manufacturing process was extremely complex, involving five assembly lines and "great care" from the operator, who "checked [the finished unit] with precision tools and instruments to assure that there is a minimum discrepancy."⁹² The various steps involved in the construction of an automobile were also surprisingly widely known to the public, largely because Ford advertised it, framing the production process itself as an advancement in manufacturing technique and the assemblers of Ford automobiles, the Mexican factory workers, as key contributors to economic productivity and the development of the nation.

The Ford manufacturing process began following the delivery of parts from the Ford headquarters in Michigan. The first assembly line pressed and painted the body plates, contorting them into body form. Doors were subsequently attached to the body, completing the first stage. The exterior of the car flowed through a second assembly line, which saw the internal component get fused on to the external body. Meanwhile, a separate line constructed the chassis, while still another line put together the axles onto which the chassis would be bolted. At this point, and the car, a conglomeration of chassis and body, was hoisted up to receive its springs in the final assembly line. Mechanics and technicians then fit the motor, or the "heart" of the car, onto the nearly assembled vehicle, at which point the car "move[d] out of the assembly line, ready for distribution to all parts of the country."⁹³ Ford promotional material lauded the "modern methods" involved in the manufacturing process, which was said to have resulted in

⁹¹ Wilkins and Hill, *American Business Abroad*, 335. However, in a 1938 letter, the manager of the Mexico branch decried the "poor business conditions" in Mexico owing to the nationalization of the oil industry during the same year. Ford de México planned to lay off 110 workers but negotiations failed between Ford and the labor union regarding an adequate unemployment package, see Adrián R. Lajous to Ford Motor Company/R.I. Roberge, Correspondence, 1938, Acc. 38, Box 41, Charles Sorensen Papers, BFRC.

⁹² "Intricate Process in the Assembly of Fords," *The News*, March 20, 1952.

⁹³ "Intricate Process."

a 300-percent-increase in the quality of Ford automobiles and a 75-percent price reduction at the same time. This dual-pronged concentration on quality and affordability was known as the “Ford way of doing business.”⁹⁴ Ford’s contribution to Mexico’s quest for modernity was multifaceted and involved not only “cooperating with the government impulse to further develop [Mexico’s] industrial sector,” and “uniting people in their desire to work,” but also revolutionizing popular consumption and urban space.⁹⁵ In its desire for profit, Ford leaned into its image as an early symbol of Mexico’s future success, an important provider of well-paying jobs and teacher of skills, an innovator of the production process, a collaborator and ally in the government’s vision for on-the-ground industrial growth, and thus as the “pride of national progress.”⁹⁶

The Psychology of a Factory: Selling Progress, Envisioning Modern Environments, and Making Automobile Consumers

And in Mexico...the Ford factory in Mexico represents an important aspect of the country’s industrialization. Here is where the construction process of the famed FORD automobile takes place.

Ford Motor Company Community Relations, “Como se construye un Ford,” ca. 1950s⁹⁷

At the 1952 re-inauguration of the Ford de México plant, Ford employees, dealers, members of the public, and the press gathered together in celebration of Ford’s twenty-sixth anniversary in Mexico. The event stretched over the course of a week and included revolving factory tours during which interested participants could learn about the company’s history and the automobile manufacturing process. Visitors discovered, for instance, that Ford had assembled 114,626 units and employed 1,186

⁹⁴ N.W. Ayer & Son, Inc. and Ford Motor Company, “La manera Ford de hacer negocios,” Advertisement Proof, Acc. 19, Box 162, Folder 1940 F-M, International Products & Services–United States, Exports, Central & South America, BFRC.

⁹⁵ “Ford, Al Frente,” Ford Motor Company, S.A., *Ford 1952*, March 20, 1952.

⁹⁶ “Ford Al Frente.”

⁹⁷ Ford Motor Company Community Relations, “Como se construye un Ford,” Informational Booklet, ca. 1950s, Acc. 951, Box 6, Ford Motor Company Non-Serial Publications Collection, BFRC. [Emphasis in original]

people over its twenty-five-year existence.⁹⁸ The ceremony closed with an extravagant exposition of the new 1952 models of the Ford, the most economical option for lower-middle-class consumers; the medium-priced Mercury; and the luxurious Lincoln lines.⁹⁹ 2,000 people—including famous “movie stars, bankers, and other important businessmen”—occupied two show rooms located at the intersection of Avenida Paseo de la Reforma and Florencia, near the iconic Ángel de la Independencia monument.¹⁰⁰ Suspended thirty feet above the ground and illuminated by spotlights, a shiny, new 1952 Ford, unveiled for the first time at this event, greeted attendees as they entered the auto show. Next to this elaborate arrangement appeared the Ford de México slogan: “*Hay un Ford en su futuro*” [There’s a Ford in your future]. Inside the gala, the spectacle was even more impressive: a maze of various Ford vehicles, one mounted ostentatiously on an elevated stage crafted to look like a giant hand (yet another recreation of a version of the Ford de México logo), intermixed with imitation palm trees, authentic volcanic rock sourced from the south of Mexico City, and cacti from the State of Querétaro. While a human invention, the cars looked as if they had sprouted from the Mexican landscape itself (**Figure 2.5**).

⁹⁸ “La Ford Motor Company Cumple Veintiséis Años en México,” *Novedades*, March 19, 1952. 34,000 units were assembled from 1926 to 1932, while the plant was still at its first location, and some 80,000 had been assembled over the twenty years at its Guadalupe location.

⁹⁹ The Lincoln-Zephyr was released in 1936, and became known simply as the Lincoln after World War II. The Mercury came out in 1938 as Ford’s solution for a middle-of-the-line product that cut pricewise between the Ford and the Lincoln.

¹⁰⁰ Ford Motor Company, S.A., *Ford 1952*, caption, n.p.; “Ford Debuts New Models,” *The News*, March 20, 1952.



Figure 2.5: Main Car Display, Ford Exhibition, 1952. Ford Motor Company S.A., “Ford 1952,” Acc. 964, Box. 1, Ford Motor Company, S.A. (Mexico) Public Relations Series, BFRC. Photograph used with permission from The Henry Ford, Benson Ford Research Center.

Throughout the week, journalists on assignment put Ford’s history in Mexico on display, resulting in a slew of reports that praised the “grand vision and extraordinary intelligence” of Henry Ford as well as “the visionary of Mexican industry, Adrián [Lajous],” the first manager of the Mexican branch who had since passed away.¹⁰¹ Amid the pomp and the memorialization of individual actors was a grander story of Ford’s contribution to the Mexican economy and the modernization of Mexico City. By the mid-1950s and early 1960s, Ford was on its way to becoming a household name, particularly in Mexico City, and was already familiar to many upper- and some middle-class residences in the capital. Going into the mid-1960s, Mexico City had become the automotive industry’s main market, as 42.5

¹⁰¹ “Ford’s 26 Years of Progress in Mexico,” *The News*, March 20, 1952; Lajous passed away unexpectedly in May of 1941, see Raúl Bailleres to B.J. Craig, Ford Motor Company Headquarters, Correspondence, May 21, 1941, Acc. 46, Box 224, Ford Motor Company Executive Correspondence Records, 1938–1948, BFRC.

percent of total national consumption of automobiles took place in the capital, rising to 45 percent by 1972.¹⁰² Speeches given during the anniversary bash by the US ambassador to Mexico, William O'Dwyer, and the current general manager, Fraime B. Rhuberry, spelled out the connection between Ford, national development, and the growth of the Mexico Capital. O'Dwyer, for instance, boldly proclaimed that the history of the Ford plant "...coincides with the era of progress in the country."¹⁰³ Along the same lines, Rhuberry also argued that the plant "represented Ford's faith in Mexico's future."¹⁰⁴ Another article asserted that Ford "work[ed] tirelessly, contributing to national progress and to the development of transportation, the basis of the country's economy," to give Mexico the gift of "progress on wheels." The article further explained that "The job has been difficult, but thanks to it today, modern vehicles cross through all parts of our wide country bringing progress and unification of ideals to even the most remote corners."¹⁰⁵ An early and consistent leader of Mexico's automotive manufacturing industry, Ford thus laid claim to the nation's overarching economic progress. Yet this was not an organic development; it was facilitated by a strategic and sophisticated advertising campaign that capitalized on the state-sanctioned narrative of industrial development and Mexicanidad. Cars remained an expensive purchase throughout the twentieth century, and the majority of Mexicans could not afford to participate in Mexico's emerging vehicular modernity without the assistance of credit.¹⁰⁶ In spite of these constraints, Mexico City quickly became the locus of popular consumption of vehicles—its fleet swelled from 31,994 in the 1930s to 1,199,471 by 1975—much to the detriment of the city's air quality.¹⁰⁷

Advertising was the backbone of Ford's success in Mexico City, as it helped Ford not only to introduce its products but to forge a broader consumer base and ultimately create a "new modern

¹⁰² Unikel, *El desarrollo urbano*, 260, 264.

¹⁰³ "Ampliación de la Ford."

¹⁰⁴ "México Cumple Veintiséis Años en la Industria Automotriz," *Novedades*, March 20, 1952.

¹⁰⁵ "Ford, Al Frente."

¹⁰⁶ A.H. Masset/Ford de México, S.A., to Dearborn Headquarters, "Monthly Letter," December 7, 1948, Acc. 712, Box 21, Folder 21-1, Correspondence Subseries, 1921–1948, BFRC. A 5 percent cost-of-living increase in 1948 also reduced buying capacity, see Masset, "Monthly Letter," October 8, 1948.

¹⁰⁷ Gloria González Salazar, "Medio Ambiente, Urbanismo y Planeación," *El Día*, September 24, 1980, clipping in L0.20.34, Lucha Contra la Contaminación, Contaminación del Aire, 1970–1986, AE, BMLT.

subjectivity among the working and middle class[es].”¹⁰⁸ Through a strategy that revolved around painting car ownership as a prerequisite of the modern urban lifestyle, Ford taught Mexicans to become automobile consumers. Local branches did not assume the responsibility of creating advertising material, however.¹⁰⁹ Instead, advertising activity during the late 1930s and 1940s was concentrated in Highland Park, Michigan, under Ford’s General Office for International Divisions. Advertisements therefore originated in the US and were exported to Ford’s international branches. Because they were American-made, ads required extra translation work and separate, location-specific design layouts. Although Ford hired outside agencies to attend to the nuances of translation, it quickly became standard practice to consult branch managers and implement local knowledge in the production of ads.¹¹⁰ While local branches did not create their own marketing material, upper-level representatives from Ford’s international divisions became key intermediaries and acted as sources of insider knowledge, informing the company about the dynamics of society—its tastes and preferences and any changes therein. Approaches to advertising and even drafts of ads thus flowed across borders as Ford worked with local managers to devise a tailored marketing strategy for its non-US operations.

Adrián Lajous, Ford de México’s first Managing Director, became an important asset in the planning and execution of numerous successful Ford advertising campaigns in the late 1930s and in 1940, before his untimely death in 1941. Of Lajous’s most notable contributions was his 1938 suggestion to Ben R. Donaldson, the Director of Advertising at Ford Motor Company, that advertisements incorporate the most recognizable features of Mexico’s environs, such as its “tropical backgrounds with palm trees,

¹⁰⁸ Susanne Eineigel, “(En)gendering a Modern Self in Post-Revolutionary Mexico City, 1920–40,” in *Consuming Modernity: Gendered Behaviour and Consumerism before the Baby Boom*, eds. Cheryl Krasnick Warsh and Dan Malleck (Vancouver, BC: University of British Columbia Press, 2013), 200.

¹⁰⁹ Despite the relative autonomy enjoyed by Ford’s Latin American branches, they were required to secure corporate approval for advertising spending and inform headquarters of use of funds. In a 1948 letter to Ford, the manager insisted on control over the local advertising budget. He writes: “Inasmuch as we have collected for Company advertising twice as much as we were authorized, we should like the Executives in Dearborn to take this into consideration and permit us to spend those sums we consider essential in order that we do not remove the name FORD completely from the public view,” see Masset, “Monthly Letter,” September 9, 1948.

¹¹⁰ Philadelphia advertising agency N.W. Ayer & Son created ads for Ford de México during this time and Durán y Sheridan Publicidad did much of the translation labor. From the mid-1940s on, the well-known advertising company, J. Walter Thompson took over Ford de México advertising.

and in others possibly volcanoes or mountains.”¹¹¹ Not only were these backdrops familiar to Mexicans, they also conjured up other forms of progress, such as the country’s expanding national highway and road system, which one newspaper article labeled “arteries” ripe for the flow of automobiles, or in the author’s words, the “revitalizing sap of progress.”¹¹² Newly built highways snaked through the Mexican terrain while roads connected city to hinterland; the car, in this sense, facilitated Mexicans’ access to the rest of the nation. Ads thus gave Mexican consumers permission to take their Ford cars, which were “most appropriate for [Mexico’s] large roads and highways, many of which trace mountains and cross through the warmest climates,” on a variety of terrain.¹¹³ Advertising strategies prioritizing the use of environmental features also attempted to recreate the experience of driving itself: “Don’t limit your drive to the highway,” one ad persuasively coaxed, “[t]ry city traffic. You will slip through even the most crowded streets. Steering and parking are no effort at all...In short...Ford cars offer you fine transportation and pleasure, too.”¹¹⁴ By 1940, Lajous’s suggestion had become Ford’s preferred approach. In one letter, Donaldson even stated that Ford “believe[s] that the...photographic value of beautiful or unusual places in the [Mexican] territory...must dominate the pictures rather than the cars.”¹¹⁵

Mexico’s characteristic mountainous backdrop, including its snow-capped twin volcanoes, Popocatepetel and Iztaccíhuatl, as well as local desert flora such as cacti, made many appearances in magazine ads, such as in the World War II-era advert below (**Figure 2.6**), which depicts a young child receiving a letter promising “abundance, well-being, and happiness,” a sentiment reinforced by the fertility of the landscape itself.¹¹⁶ Even the characteristically crisp air helped sell the automobile. Mexico’s terrestrial and atmospheric features are prominent in a 1939 advertisement for the Lincoln-Zephyr, which

¹¹¹ Adrián R. Lajous to Ben R. Donaldson, Correspondence, December 27, 1938, Acc. 1394, Box 2, Foreign Branch Advertising Records, 1938–1940, BFRC.

¹¹² “Ford Al Frente.”

¹¹³ Ford Motor Company, S.A., to Ben R. Donaldson, Excerpt from Letter, August 22, 1939, Acc. 1394, Box 2, Foreign Branch Advertising Records, 1938–1940, BFRC; quote in “Ford al Frente.”

¹¹⁴ Ford Motor Company/J. Walter Thompson, “For Pleasure...as well as Transportation,” ca. 1940, Advertisement Proof, Acc. 19, Box 162, Folder 1940 S-Z, Advertisements Series, BFRC.

¹¹⁵ Ben R. Donaldson to Adrián R. Lajous, Correspondence, November 29, 1940, Acc. 1394, Box 2, Foreign Branch Advertising Records, 1938–1940, BFRC.

¹¹⁶ See Ford Motor Company/J. Walter Thompson, “Carta a un chico de diez años,” ca. 1940, Advertisement Proof, Acc. 19, Box 163, Folder 1944 A-L, Ford Motor Co. Advertisement Collection, BFRC.

proclaimed that the Ford car “thrives on mountain air!” but “...proudly functions both on the slopes as well as on the plains. [Even] the city also knows of its advantages” (**Figure 2.7**). The Lincoln, as this piece of publicity implied, fit comfortably into the Mexican landscape—not only was it suitable for longer, leisure trips and for daily activities around the town, but it indeed *thrived* on the valley’s thin air. Though the Lincoln was Ford’s fanciest and most costly model, and therefore its most exclusive, Mexican ads went to great lengths to underscore the idea that it was also the most versatile, capable of maneuvering through any terrain without sacrificing the quality of the passenger experience or its visual appeal. A family car, the Lincoln was also a status symbol: it was, as the announcement concluded, “...today’s car, for today’s broader travel outlook [and] is admired even by those who do not own it.”¹¹⁷ As the advertisements that focused on environmental features implied, the Ford automobile could open an entire country to the interested and, most importantly, financially able Mexican. Equally important, it could also make everyday activities, such as driving to work, easier and more enjoyable.



Figure 2.6: Advertising Nature and Nationalism. N.W. Ayer & Son, Inc., “Carta a un chico de diez años” Acc. 19, Box 162, Folder 1940 F–M, International Products & Services—United States, Exports, Central & South America, BFRC. Photograph used with permission from The Henry Ford, Benson Ford Research Center.

¹¹⁷ N.W. Ayer & Son, Inc., “¡Este Automóvil Medra con los Aires de las Montañas!,” ca. 1938, Advertisement Proof, Acc. 19, Box 162, Folder 1940 D–E, Advertisements Series, BFRC.



Figure 2.7: Lincoln-Zephyr Advertisement, 1939. N.W. Ayer & Son, Inc., "¡Este Automóvil Medra con los Aires de las Montañas!" Acc. 19, Box 162, Folder 1940 D-E, International Products & Services—United States, Exports, Central & South America, BFRF. Photograph used with permission from The Henry Ford, Benson Ford Research Center.

Owing to this and other suggestions, Lajous became a trusted counselor to Donaldson, who relied on his "recommendations and comments," and often cabled Lajous to ask for "detailed information regarding [the] relative effectiveness" of various advertising campaigns.¹¹⁸ As a result, Lajous became further immersed in advertising operations and took on greater responsibility. Among other things, he took to scouting target publications that would offer Ford automobiles the widest publicity. In

¹¹⁸ Ben R. Donaldson to Ford Motor Company, S.A., Memorandum, August 9, 1940, Acc. 1394, Box 2, Foreign Branch Advertising Records, 1938–1940, BFRF.

a 1940 letter to Donaldson, for example, he pinpointed “[t]he outside cover of the weekly magazine ‘HOY’ [as], in the writer’s opinion, the very finest space available for automobile advertising.”¹¹⁹ Lajous also confidently inserted himself into debates about proper translation, at one point criticizing the “dryness” of a US-produced ad, “and the impossibility of making [the language] understandable and convincing.”¹²⁰ On more than one occasion Lajous argued against the oversimplification of direct English-to-Spanish translations, asserting that the everyday Mexican consumer was indeed an educated one, and any facile adaptations would come off as inauthentic. This argument seemed to garner Donaldson’s support, who confirmed in a letter that the “educated Mexican [was] the buyer of automobiles” and “understands good Spanish.”¹²¹ The close collaboration between the department head of advertising at Ford’s headquarters and the manager of the Mexican branch resulted in marketing programs that remained sensitive to the nuances of the Mexican consumer base of the mid-twentieth century.

Ford de México’s yearly expense statements for the 1930s and 1940s indicate that advertising had grown considerably more important as a driver of sales with the passage of time. From 1937 to 1947, for instance, the total annual advertising expense rose from 27,000 to 156,000 US dollars, an impressive increase considering the internationally strenuous economic conditions.¹²² Ford also experimented with a spectrum of advertising formats for many of its branches during this period, venturing into the production of radio commercials, more comprehensive months-long broadcasting programs, magazine inserts, illustrated articles and newspaper sections, and travel publications.¹²³ Outdoor advertising, an

¹¹⁹ Adrián R. Lajous to Ben R. Donaldson, Correspondence, April 30, 1940, Acc. 1394, Box 2, Foreign Branch Advertising Records, 1938–1940, BFRC.

¹²⁰ J.M. Durán, Durán y Sheridan Publicidad, to Adrián R. Lajous, April 30, 1940, Correspondence, Acc. 1394, Box 2, Foreign Branch Advertising Records, BFRC.

¹²¹ Durán to Lajous, April 30, 1940, see handwritten notes in margins. In support of Lajous, Donaldson wrote in the margins that “The educated Mexican understands good Spanish and words used by Mexican mechanics or truck drivers or chauffeurs.”

¹²² Ford Motor Company, “Budget for International Advertising Campaign,” Acc. 503, Box 7, Small Accessions Collection, BFRC.

¹²³ Donaldson to Lajous, November 29, 1940; Ford Motor Company, “Broadcasting Sunday Evening Hour to Mexico,” Memorandum, October 26, 1939, Acc. 1394, Box 2 Foreign Branch Advertising Records, 1938–1940, BFRC. This particular broadcast lasted thirteen weeks, from October 1939 to January 1940, and included announcements and musical selections.

early and efficient means of reaching large volumes of people, also saw greater investment by the Mexican branch. In just one year, from 1939 to 1940, Ford de México's fleet of 191 billboard posts grew to 215, many of which were in the vicinity of Mexico City proper, "where most of [Ford de México's] business is located."¹²⁴ Banners or billboards, which were leased independently by the Mexican branch, were useful because they donned simple messages that could be quickly digested by passersby. But throughout the 1940s, other media gained popularity. In 1948, newspaper ads constituted the largest share of the total advertising expense, with magazines rounding out a close second. Ads appeared in widely read magazines like *Selecciones México* (akin to Reader's Digest) or the Latin American edition of *Time Magazine*, as well as in those whose readership consisted of technicians, mechanics, or a more specialized audience, such as *Ingeniera Internacional-Industria*, *Ingeniera Internacional-Construcción*, and *El Automóvil Americano*.¹²⁵ While ad formats diversified in the 1940s, the message became more polished. As the results of Mexico's economic miracle crystallized, and a new middle-class base surfaced, Ford ads overwhelmingly focused on selling modernity.

Whether in newspaper ads, television commercials, radio broadcasts, or magazine inserts, Ford argued that it offered the Mexican public something greater than a form of transportation. The car was instead a *tool* for upward social mobility as well as a symbol of Mexicans' quotidian participation in the state's modernization efforts. In other words, Mexicans practiced consumption in the name of the nation.¹²⁶ Commodity consumption during the economic miracle years had transformative powers, and the Ford car, in particular, was a key component in the path toward self-improvement. "Modernize yourself," one ad bluntly commanded, by purchasing a Ford vehicle (**Figure 2.8**).

¹²⁴ For more on the origins of the billboard and the use of public space for marketing, see Laura E. Baker, "Public Sights versus Public Sites: The Progressive Response to Outdoor Advertising and the Commercialization of Public Space," *American Quarterly* 59, no. 4 (December 2007): 1187–1213.

¹²⁵ Ford Motor Company, "Mexico 1948 Advertising," 1948, Acc. 503, Box 7, Small Accessions Collection, BFRRC.

¹²⁶ In her analysis of gendered consumption in post-revolutionary Mexico, Susanne Eineigel also writes that "Consumerism, as a means to experiment with fashioning a modern self, signified an investment in modernity... participation in consumer culture presumed an enchantment with the modern itself," see Eineigel, "(En)gendering a modern self," 212.



Figure 2.8: Ford Mercury-8 Advertisement, 1939. N.W. Ayer & Son, Inc., “Modernicnese Ud. Compre un Mercury 8,” Acc. 19, Box 162, Folder 1939 F–M, International Products & Services–United States, Exports, Central & South America, BFRC. Photograph used with permission from The Henry Ford, Benson Ford Research Center.

Another ad more elegantly explained that the car was a ticket for admission into the modern sphere when it announced that “The Modern [car] was for the modern world.”¹²⁷ But what made a car modern? Indeed, style figured prominently in the preoccupations of a rising middle class in a modernizing Mexico City. In one ad, a young couple, the Rodriguezes, “finally finds the car they desire:” a Ford V-8, “built with appointments that are modern and smart...and [offering] a modern performance.”¹²⁸ In this ad, the Rodriguez couple, a play on the American version of the Joneses or the Smiths, represents the new consumer culture. But rather than furthering a blind mass consumerism, their public display of consumption was purported to be more refined, as the dialogue between the wife and husband proved

¹²⁷ N.W. Ayer & Son, Inc. and Ford Motor Company, “El moderno ‘Doce Cilindros’ para el mundo moderno,” Advertisement Proof, 1938, Acc. 19, Box 162, Folder 1939 A, International Products & Services–United States, Exports, Central & South America, BFRC

¹²⁸ N.W. Ayer & Son, Inc. and Ford Motor Company, “Los Sres. Rodriguez ¡al fin encuentran el automóvil que desean!,” Advertisement Proof, 1938, Acc. 19, Box 161, Folder 1938 F–M, International Products & Services–United States, Exports, Central & South America, BFRC.

them to be aware of the novel features of each car. Private car ownership involved more than crafting and conveying an aesthetic of modernity; it carried practical benefits as well. Ads outwardly demanded that consumers “Look beneath the outward style...[toward] its modern performance.”¹²⁹ Namely, a car was modern because it freed Mexicans from the burden of using public transportation, which had already begun to show signs of wear in trying to service Mexico City’s rapidly growing population by the mid-twentieth century. Classist marketing such as the below tapped into an embryonic popular dissatisfaction with public transportation; many Ford ads thus promised a roomy, comfortable experience, reassuring drivers that they would always travel first class (**Figure 2.9**).



Figure 2.9: Ford V-8 Advertisement, 1938. N.W. Ayer & Son, Inc., “Con un Ford V-8 Usted Viaja Siempre en ‘Primera Clase,’” Acc. 19, Box 161, Folder 1938 A–F, International Products & Services–United States, Exports, Central & South America, BFRC. Photograph used with permission from The Henry Ford, Benson Ford Research Center.

¹²⁹ N.W. Ayer & Son, Inc. and Ford Motor Company, “¡Mire tras el estilo exterior de un automóvil!,” Advertisement Proof, 1938, Acc. 19, Box 161, Folder 1938 F–M, International Products & Services–United States, Exports, Central & South America, BFRC.

The Ford automobile empowered the economically privileged to escape the crowds of public transportation, allowing them to trade the congested city air for the clean air of the mountains. In style and in performance, then, Ford cars became an essential accompaniment to and demonstration of a specific version of Mexican modernity.

Pumping the Brakes: New Challenges and Final Considerations

In his monthly letter of business conditions, dated January 10, 1949, the Assistant General Manager of Ford de México, A.H. Masset, commented on Mexican consumption of automobiles. He noted that although “automobile and truck prices are as high as they can possibly go in Mexico,” sales conditions remained impressive. “It is difficult to explain the reason for this heavy demand,” he continued, “except by attributing it to the normal demand that this country has for automotive products. There seemed to be no reason for purchasing automobiles or trucks in December. However, heavy purchases were made which indicates to us that the people who bought these units simply had to have them immediately in order to satisfy the pressing needs of their various businesses.”¹³⁰ Though Masset never reached a definite conclusion in his letter as to why demand had gone up so, it is plausible, as Masset himself implies, that Ford was beginning to reap the fruit of its continuous advertising efforts, which had, for decades, sold modernity packaged as an automobile to Mexican consumers.

Masset’s evaluation of intensifying automobile consumption was but a hint at what would follow in the 1950s and 1960s, when the automobile grew to dominate the urban landscape. To meet this increase in demand, by mid-century, Ford contracted out branch advertising to the marketing giant, J. Walter Thompson, vis-à-vis its Mexican office, Walter Thompson de México, S.A., which was established in Mexico City in 1943.¹³¹ Among the developments that Walter Thomson de México brought to the

¹³⁰ Masset, “Monthly Letter,” January 10, 1949.

¹³¹ By 1965, thirty-five “well-known firms” existed in Mexico, along with subsidiaries of European and US advertising companies, see US Department of Commerce, *A Market for US Products*, 46. For a history of Walter Thompson de México, see Walter Thompson de México, S.A., to Lee Preschell, Memorandum and Report, December 18, 1984, Box 63, Folder “International Offices, Mexico City, 1984–1987,” Jack Peters Papers, 1965–1989, RL.00738, JWT, RRBML.

marketing of Ford vehicles in the mid-twentieth century was an expansion into television advertising. In the 1950s, Thompson de México made a strong case for Ford to produce television commercials, an “ambitious,” expensive, yet necessary undertaking, one that capitalized on television’s “coming of age” in Mexico, and Mexico City’s emergence as “a very active production center for motion picture film intended for either cinema or television use.”¹³² By 1967, 40 percent of Thompson de México’s expenditures were on television, while marketing in newspapers and magazines dropped down to 21 percent and outdoor advertising falling to a meager 3 percent. Furthermore, Walter Thompson de México communicated a desire to “explore the possibilities of putting on a Color Television Presentation in Mexico, since color telecasting is expected to start in 1967.”¹³³ Another of its contributions was the incorporation of local talent (writers and artists)—at the request of Ford de México’s upper management—in the creation of promotional material.¹³⁴

Despite this march of progress, Thompson de México faced a peculiar challenge unfamiliar to previous advertisers of Ford automobiles. Motorized vehicles, which ran on leaded fuels and left dark clouds of soot in their wake, were by the late 1960s widely recognized as overt mobile sources of air pollution. The heavy concentration of autos in Mexico City, a place where marketing had been so successful that the desire for automobile ownership had grown seemingly innate, and where single residences laid claim to not one, but multiple, private vehicles, put Ford de México, the longest running automobile producer in the country, on uncharted ground. Feeling the pressure, Thompson de México attempted to get ahead of the problem by portraying Ford as a willing ally in the government’s fight for

¹³² Thompson de México and J. Walter Thompson’s International Division made this case on three separate occasions in 1955, see Shirley F. Woodell to Robert E. Dennison, Memorandum, September 20, 1955, Box 3, Folder 8, Shirley F. Woodell Papers, Office Files and Correspondence Series, RL.00760, JWT, RRBML; Shirley F. Woodell to Robert E. Dennison, Memorandum, October 12, 1955, Box 3, Folder 8, Shirley F. Woodell Papers, Office Files and Correspondence Series, RL.00760, JWT, RRBML; Shirley F. Woodell to Albert Cole, Correspondence, October 4, 1955, Box 3, Folder 8, Shirley F. Woodell Papers, Office Files and Correspondence Series, RL.00760, JWT, RRBML.

¹³³ J. Walter Thompson, “Mexico, Annual Marketing Report,” January 1967, Box 9, Folder 2, Thomas Sutton Papers, Annual Marketing Plans and Reports, 1966–1975 and undated, RL.00752, JWT, RRBML; J. Walter Thompson Company, “Premian Comerciales de Televisión Mexicanos,” *Aquí Latinoamericana*, no. 1 (August 1966), 3, Box IN2, Folder 1, J. Walter Thompson Newsletter Collection, International Newsletter Series—Latin America, RL.00733, JWT, RRBML.

¹³⁴ Meredith Conley to Loy Baxter, Correspondence, March 2, 1967, Box 1, Folder: “Mexico City, Office Files, 1967,” Loy Baxter Papers, RL.00666, JWT, RRBML.

pollution control, should it arise as it had in US and western European cities.¹³⁵ Mexico's commitment to industrialization nevertheless remained strong, and the narrative of national economic progress continued to outweigh, and even rebuff, nascent atmospheric concerns in urbanizing cities across the country. As Mexico entered the second half of the twentieth century, its national quest for modernity yet to be fully realized according to political officials, worries about the quality of the air breathed by residents of large cities, such as the country's capital, grew more prevalent.¹³⁶ A laser focus on state-sponsored industrial development over three decades, one which remade the sky itself into a symbol of modernity, all but assured that germinating environmental concerns would be relegated to the margins of official consideration. However, as the following chapter shows, other industries were forced to address Mexico City's air pollution much earlier than those that manufactured articles for daily consumption. These industries were the unlikely facilitators of dialogue surrounding the capital's atmospheric deterioration, predating even official politics.

¹³⁵ "Champion lucha contra la contaminación," *Temas Thompson*, no. 1 (April/June 1978), 5, Box IN2, Folder 3, J. Walter Thompson Newsletter Collection, International Newsletter Series—Latin America, RL00733, JWT, RRBML.

¹³⁶ Even in the early 1980s, environmental protection was painted as a "high cost" in the country's continued industrialization, see María Teresa Rendon, "Deben organizarse en un solo bloque las normas dispersas sobre protección de ambiente," *El Día*, April 10, 1981, clipping in L0.20.34, Lucha Contra la Contaminación, Contaminación del Aire, 1970–1986, AE, BMLT.

Chapter Three

Atmospheric Dialogues during the Age of the “Mexican Miracle”

As companies like Ford de México, along with millions of urban consumers and industrial workers, helped bring the state’s vision of modernity to fruition throughout the mid-twentieth century, transforming the cultural and material landscape in the process, other industries unexpectedly came up against the effects of urbanization-led environmental change. The tourism sector was one such example of this paradox. In the early 1960s, the Mexican National Tourist Council, established in 1953 to see the tourism industry through a dry spell, released a series of promotional brochures with the intention of marketing international travel to Mexico, and specifically to its capital.¹ Though it was the national commercial and population center, as well as the primary beneficiary of the country’s decades-long economic miracle, Mexico City suffered from chronic fluctuations in its tourist inflow going into the second half of the twentieth century due to a combination of factors. For one, rising seaside destinations located along the Pacific Coast, principally the city of Acapulco—dubbed an “outpost of Hollywood,” and, by 1955, “the most famous resort area in Mexico”—played a role in luring foreign, usually English-speaking tourists away from the urbanizing nucleus.² Regional competition, however, was not the only

¹ Milton Bracker, “Fair Deal for Mexican Tourists,” *New York Times*, February 23, 1947, X14. A 7-percent decrease in annual visitors in 1953, reportedly a response to high prices, stymied the lucrative Mexican tourism industry. As such, the objectives of the Mexican National Tourist Council, previously known as the Mixed Pro-Tourism Commission, were to “coordinate the efforts of official and unofficial organizations in the field to promote domestic tourism; improve tourist services and correct abuses [such as price gouging]; employ a more effective publicity campaign abroad, particularly in the United States; and to encourage the revival and continuance of the country’s more colorful customs such as the traditional fiestas and pageants,” see US Department of Commerce, “Mexico Strives to Encourage Tourism,” *Foreign Commerce Weekly* 50, no 1 (July 6, 1953): 3; “Mexico Cheapens Tourist Travel,” *New York Times*, January 6, 1954, 80. The council, which collaborated with private industry (hotel owners, airline companies, and restaurateurs) to keep prices low, complemented the aims of the Mexican Tourist Association, a private organization founded in the 1930s. In 1961, President Adolfo López Mateos (1958–1964) appointed former President Alemán, under whom the country’s industrialization project flourished, as the head of the council, representing a deepening of state involvement in the tourism sector.

² For a contemporaneous report that captures the fascination with Acapulco, see “Acapulco Still Most Famous Mexican Resort,” *Daily Boston Globe*, March 20, 1955, 73; on the rise and fall of Acapulco through the historical perspective, see Marcel Sebastián Anduiza Pimentel, “From Pacific Gateway to Tourist City: Migration, Revolution, and Tourism Development in Acapulco, Mexico, 1849–1970,” (PhD diss., University of Chicago, 2019). Puerto Vallarta and Mazatlán were also rising tourist vacation spot by the late 1950s and early 1960s. These and other

challenge facing Mexico City tourism at this time. Escalating environmental conditions, such as ambient air pollution, made for an overall less pleasant visitor experience, as demonstrated in an earlier chapter with the 1952 account by the Stockdale family, whose view of the iconic volcanoes was masked by an unabating haze during their excursion to the city.³ For some tourism boosters and advertising agents of the 1950s and early 1960s, like those associated with the aforementioned council, a sullied sky was less a professional death knell than a minor nuisance that presented an opportunity for creative problem-solving.⁴ For example, in a subtle acknowledgement of this new reality that awaited the city's vacationers, one of the Council's more unceremonious pamphlets beckoned prospective tourists to "Mexico City [the] fabled metropolis in the clouds," a place where, "...when the air is clear has a magnificent view."⁵ Though the purpose was to sell the city to travelers, this advertisement, and many others like it as this chapter reveals, represented an early admission of Mexico City's atmospheric deterioration. Air pollution, as the ad implied, had rendered unpredictable daily access to Mexico City's skyline and scenic vistas. Yet the much-touted view was advertised nonetheless, deemed culturally and historically significant enough that even the mere possibility of tourists being able to take sight of the landscape in an unblemished sky had value.

The tourism industry was not alone in generating dialogue about the quality of the air in the capital during the 1960s. The environmental science community, consisting of prominent Mexican chemists, meteorologists, and public health experts also raised a plethora of concerns about Mexico City's air quality. In undertaking atmospheric work, such as research on air pollution or the development of air

Pacific resorts were called "gold mines," see "Mexico's Pacific Resorts Suit All Types of Tourists," *St. Louis Globe-Democrat*, January 7, 1956, 4E. Internal political and social conflicts incited by revolutionary activity in Cuba caused Mexico's tourism economy to fluctuate yet again in the 1960s, spurring the council to put out a more intense advertising campaign. The quoted material above is a product of that campaign.

³ Despite the Stockdales' pollution troubles, travel journalism of this era continued to advise tourists that Popocatepetl and Iztaccíhuatl could easily be seen from their hotel rooms. As one article claimed: "When the setting sun tints the snowy slope of Popocatepetl [*sic*], the 17,887-ft. volcano seems to float majestically besides its twin peak Ixtacihuatl [*sic*], in the thin air over Mexico City. To tourists looking out from their hotel windows, the rosy mountain is enchanting," see "Popo's toll," *Time Magazine*, November 1, 1954, 40–41.

⁴ As air pollution grew more serious in the 1970s and 1980s, it became a bigger problem for the tourism industry in Mexico City, one that marketing could no longer finesse. The first half of this chapter explores this phenomenon in greater detail below.

⁵ Mexican National Tourist Council, *México*, 1969, Travel Brochure, Box MEX 5, Folder 2, Anspach Travel Bureau Collection of Tourism Literature, 1936–2014, RRBML. [Emphasis added by author]

monitoring technologies, they displayed a multidimensional understanding of air and the sky as both an agent profoundly changed by the material processes of urban-industrial growth and an agent of cultural landscape change in and of itself. As briefly mentioned in Chapter Two, chemists, engineers, meteorologists, climatologists, and medical professionals, many of them employed by educational institutions such as the Universidad Nacional Autónoma de México, the Colegio de México, and the Instituto Politécnico Nacional or working in private laboratories, were early proponents of the empirical study of ambient pollution in Mexico, a process revolving around disembodied, more cerebral engagements with *particulate matter* rather than with the grander, all-enveloping, and immaterial substance that the air represents for most laypeople. But this methodology did not preclude scientists from perceiving atmospheric change through a cultural lens as well. In their papers and presentations, sources that constitute the critical analytical entry points upon which the second half of this chapter relies, readings and measurements of air and the sky complemented historically and culturally sensitive discourses about them.

During the miracle years, however, nationalist narratives publicizing economic progress and industrial development greatly overshadowed—indeed, stifled—those that drew attention to the environmental transformations simultaneously taking shape in the capital. Amplifying or pursuing environmental themes in policy and in science, the dominant logic followed, had the potential to derail the crusade for Mexican economic independence, especially as the link between air pollution and the emissions discharged by fossil-fueled industrial facilities and automobiles solidified within the leading academic circles in the US and Europe. Operating under this assumption, some federal administrative bodies, such as the Secretaría de Salubridad y Asistencia, or the Ministry of Health and Welfare, portrayed environmental protection in Mexico as antithetical to economic prosperity, going so far as to claim in 1965 that “[t]he smog problem cannot be eliminated entirely without putting a stop to the city’s very life.”⁶ In the absence of abundant interest in and financial support for such discussions at home, representatives from Mexico City’s scientific community brought the city’s germinating but alarming

⁶ David Weber, “Mexico Tackles the Problem of Smog,” *Dallas Morning News*, September 16, 1965.

experience with atmospheric degradation to large, international conferences, in effect giving the capital's chronic air pollution greater tangibility.⁷

Although confronting the same issue at much the same time, at no point during the 1960s did the tourism industry and the academic community coordinate their responses to the unfolding environmental complications in Mexico City; nor was there much communication between the two groups on the matter of the changing state of the capital's air. To the contrary, each had different motivations for and approaches to their respective involvement in the discourse on ambient pollution. Scientists and tourism promoters nevertheless espoused parallel messages about Mexico City's air contemporaneous of one another during a critical moment in which political authorities had yet to meaningfully enter the conversation. Whether they acted out of the fear of lost business, as was the case for tourism entrepreneurs, or in the interest of protecting the general public health and residents' quality of life, as was the stated objective of scientists, these actors were at the helm of the construction of a pollution problem in Mexico City. As this chapter shows, important messages about the atmospheric transformation of the valley originated not in the spheres of politics or government, but within professional communities and industries whose livelihoods were, in one way or another, dependent upon the environment.

For those involved in the tourism industry, the physical environment of a place—the combination of its natural and built features—comprised the “basic ‘ingredient’ of the tourist product.”⁸

⁷ Historians of science have examined the ways in which denial and ignorance function as a form of politics to prevent change. Robert Proctor and Londa Schiebinger's *Agnotology* has shown that ignorance is sometimes willfully, and oftentimes culturally, produced. In Mexico City's case, the challenges that some scientists faced in carrying out air pollution research and in bringing that information to the public was influenced by the city's economic potential. As the next chapter explains, political and legal discourses did much to mediate popular perceptions of air pollution, and frequently downplayed its seriousness, even as scientists had gained more agency over the creation and dissemination of pollution knowledge. To be sure, science was complicit in ignorance-making—political intimidation functioned to silence some scientists while others fit science into a pre-determined, state-sanctioned narrative. See Robert N. Proctor and Londa Schiebinger, *Agnotology: The Making and Unmaking of Ignorance* (Stanford: Stanford University Press, 2008). Along these same lines, scholars have shown how politics has concealed the political origins of race, reworking it into a biological conception. See Dorothy Roberts, *Fatal Invention: How Science, Politics, and Big Business Re-create Race in the Twenty-First Century* (New York: The New Press, 2011).

⁸ Helen Briassoulis and Jan van der Straaten, eds., *Tourism and the Environment: Regional, Economic and Policy Issues* (Dordrecht, Netherlands: Kluwer Academic Publishers, 1992), 1–2. On the relationship between tourism and the environment, the authors write that the tourist product is the “natural and/or manmade setting for the tourist to enjoy, live in, and relax...Tourism development of an area depends on the availability of attractive natural and/or

Mexico City's pollution and high population density, two side effects of the economic miracle, negatively impacted the tourist experience, jeopardizing the success of the tourism economy there. Adding an additional dimension to Mexican tourism enthusiasts' woes was the bad press garnered by consistent international newspaper coverage of Mexico City's air pollution, principally within the US, which was by far Mexico's most crucial foreign tourism customer.⁹ Although a select few outspoken tourism representatives implored the government, which had invested in tourism development much like it did in manufacturing during the program of forced industrialization, to give more consideration to air pollution's propensity to disrupt the industry's day-to-day operations, pollution did not become part of the official political agenda until the 1970s. Consequently, marketers and travel journalists used advertising to manage the risks that deteriorating environmental conditions presented to tourism. In midcentury promotional campaigns and individual travel advertisements materializes an incipient yet historiographically neglected commentary on atmospheric pollution.

Travel marketers relied on a variety of tactics to work around Mexico City's unsightly ambient pollution in hopes of sustaining tourists' interest in the city. These techniques ranged from the rebranding of air pollution as a component of the new urban aesthetic, common among the largest, most modern cities in the US and Europe, such as Los Angeles, New York, London, and Paris, to the glossing over of pollution altogether in the assertion of continuity in the wellbeing of the city's environment. A more nuanced approach, the latter strategy allowed tourism promoters to circumvent that which made Mexico City unpalatable to foreign visitors. Advertisements leaning into this line of attack showcased Mexico City as a "harmonious blend of past and present," a balance manifest not just in the city's mix of new and old buildings, but in its enduring environmental attributes.¹⁰ Its temperate climate, for instance, hyped as "one of the [city's] biggest lures" was, in one travel columnists' opinion, "what drew the first Indians to

manmade resources which tourists demand and pay for...Natural, unspoiled scenery, beaches, mountains, ancient monuments, traditional, picturesque towns and villages and many more constitute the primary inputs to the production of a tourist product," see pg. 2.

⁹ As one news article put it in 1963, "When a Mexican talks about tourists, he almost always means Americans," see Harry Ferguson, "Mexico: Land of the Yankee Tourist Dollar," *Madera Tribune*, January 14, 1963.

¹⁰ Turismo de México, *Feel the Warmth of Mexico City*, 1966, Travel Brochure, Box MEX 5, Folder 1, Anspach Travel Bureau Collection of Tourism Literature, 1964–2003, RRBML.

the Valley...”¹¹ Along with its natural landmarks, like the towering volcanoes that long ago left the Spanish colonizers awestruck, such features were portrayed as timeless, their unbroken and consistent existence providing a semblance of familiarity amid the rupture posed by air pollution.

Atmospheric science professionals, on the other hand, engaged with and agonized over the air of the city for different reasons and in different ways.¹² Aware of intensifying battles being waged against air pollution abroad, scientists based in Mexico, many of whom received formal training at prestigious universities outside of the country, recognized troubling similarities taking place in Mexico City and strove to apply the latest technologies to better understand the unique chemical composition of local atmospheric contamination. Though collaboration with government officials in the 1960s sometimes occurred, scarce funding for conducting experiments and taking air quality measurements diminished the scope and overall success of early attempts. Instead, international atmospheric science and chemistry symposia acted as sounding boards for Mexico’s mounting air pollution and became spaces for the transnational exchange of data, devices, methodologies, hypotheses, frameworks for action, and the formation of professional partnerships. This chapter interprets scientists’ reports, technical talks, and research results not as apolitical or infallible truth claims—to be sure, scientific knowledge existed not in a vacuum, but a complex web which included contributions by the state, industry, the media, and the quotidian human experience—or as a somehow more valuable source base than that left behind by midcentury tourists and tourism advertisers. Rather, this chapter views their scholarship as representative of discursive (re)imaginings of the landscape.¹³ Through their involvement in global workshops, scientists

¹¹ Larry Allen, “Climate is Mexico Lure,” *Fort Worth Star Telegram*, April 23, 1964, 10; “Ancient and Modern Contrasts Sharply In Mexico City,” *The Sacramento Bee*, May 7, 1967, T4.

¹² For more on the development of the field of atmospheric science throughout the twentieth century, see Fleming, *Inventing Atmospheric Science*. Fleming writes that this field grew out of meteorology in the mid-1950s, focuses on the “role of the atmosphere as a milieu and as an environment,” and calls on scientists from meteorology and other fields “to work together on specific problems and to take advantage of new techniques, new challenges, and new opportunities at hand...” This field includes “research specialties in meteorology and climatology, cloud physics, atmospheric chemistry,” and others, see pg. 11. See also Whitehead, *State, Science and the Skies* for the history of “atmospheric government” and the “apparatus of atmospheric knowledge acquisition” in Britain.

¹³ Similarly, in her study of the practice of air quality measurement in Mexico City, including both the technologies that track the air and the people who operate them, Natalia Verónica Soto Coloballes points out that measurement itself, while conducted through the use of machines, is neither automatic nor objective. Measuring, she has asserted, constitutes the social production of knowledge. The technical, she argues, embodies the political. See Natalia Verónica Soto Coloballes, “La medición de la calidad del aire y la retórica de sus gestores,” in *Cambio climático, ciudad*

presented figures, formulas, and findings as much as they did a socially constructed portrait of the city. In this portrait, pollution figured prominently, expressed largely in numbers, graphs, and in terms of its individual chemical compounds. But cultural meanings persisted, too, imbricated with the more sterile, scientific constructions of the air.

Entwined within the raw data produced by scientists and the colorful language of tourism promoters and travelers alike are overlooked historical snapshots of a developing pollution problem. Although they spoke in different languages and to dissimilar audiences, Mexico's scientists and tourism promoters discerned and readily commented on atmospheric change in the 1960s.¹⁴ Their respective environmentally-centric occupations uniquely positioned them to address such themes, ultimately making these actors key participants in a larger project of bringing air pollution into the sphere of politics. Their everyday work—be it advertising or scientific experimentation—exemplified two very different ways of knowing and making sense of air. Taken together, they give deeper insight into the role of the air in the making of a new landscape as Mexico entered the latter, more problematic half of its miracle years.

Both sectors partook not only in knowledge creation but in meaning-making as well. Scholars who study sense of place formation have explained that evolutions in place meaning occur as a result of the “dynamic relations among mind, culture, and environment.”¹⁵ The social construction of meanings and their application to physical settings, they have argued, involves the “shared performance of individuals, by inventing, constructing, and deconstructing [the] structures” of a space.¹⁶ Environmental

y gestión ambiental: Los ámbitos nacional e internacional, ed. José Luis Lezama (Ciudad de México: El Colegio de México, 2018), 423–449.

¹⁴ Similar tensions played out in the US as well leading up to the creation of the 1964 Wilderness Act, which legally protected public lands from the incursion of automobile tourism. In this project, according to Paul Sutter's *Driven Wild*, the group of men who founded the Wilderness Society and heralded wilderness advocacy, much like the characters presented together here, were not united by a common politics. Instead, Sutter recognizes the “various streams of thought that came together to launch a new idea...” see Paul S. Sutter, *Driven Wild: How the Fight against Automobiles Launched the Wilderness Movement* (Seattle: University of Washington Press, 2002), 7.

¹⁵ Christopher M. Raymond, Marketta Kytä, and Richard C. Stedman, “Sense of Place, Fast and Slow: The Potential Contributions of Affordance Theory to Sense of Place,” *Frontiers in Psychology: Environmental Psychology* 8 (September 2017): 1.

¹⁶ Raymond, Kytä, and Stedman, “Sense of Place, Fast and Slow,” 4. On the relation of space and place, geographer Yi-Fu Tuan writes that “[i]n experience, the meaning of space often merges with that of place. ‘Space’ is more abstract than ‘place.’ What begins as undifferentiated space becomes place as we get to know it better and endow it with value.” See Yi-Fu Tuan, *Space and Place: The Perspective of Experience* (Minneapolis: University of Minnesota Press, 1977), 6. For an urban-environmental history perspective of place- and meaning-making in a

studies researchers have also shown that “site-specific values,” which develop out of the social practice of meaning-making, are assigned in response to immediately perceived changes in an environment, such as those elicited by nature-induced disasters or rapid urbanization, as well as through “longer-term processes of cognition” brought on more gradually by the continuous making and remaking of environments in response to the cumulative impact of various stimuli over time.¹⁷ Scholars define these as “fast” and “slow” transformations in sense of place, and an analysis of Mexico City using the atmosphere as a lens presents a poignant case study for the ways in which these processes played out against varying timescales.

In less than half a century, from the 1940s to the 1970s specifically, the surface appearance of Mexico’s capital had undergone a most obvious overhaul. Material alterations in the urban landscape, caused by the build-up of infrastructure designed to support industrial production, commercial activity, and motorized transportation on a massive scale, modernized the city, a process that triggered a host of environmental consequences. By the 1960s, thousands of smoke-producing factories flanked the city’s northern, eastern, and western edges while diesel-fueled personal vehicles, trucks, and buses numbering in the hundreds of thousands passed over its highways and roads on a daily basis. The exhalations from these stationary and mobile sources produced conspicuous, unattractive, and inescapable clouds of soot whose particles lingered over the valley and blocked prized panoramas from sight.

Tourism industry leaders, as well as the customers they serviced, and members of the academic community were early beacons in the perception of this atmospheric change. For them, the pollution of Mexico City’s air presented multiple ramifications, both over the short and long terms: atmospheric contamination not only constituted a health and business liability, but it also disrupted the deep-seated

border community, see Monica Perales, *Smeltertown: Making and Remembering a Southwest Border Community* (Chapel Hill: University of North Carolina Press, 2010).

¹⁷ Silva Larson, Débora M. De Freitas, and Christina C. Hicks, “Sense of place as a determinant of people’s attitudes towards the environment: Implications for natural resources management and planning in the Great Barrier Reef, Australia,” *Journal of Environmental Management* 117 (2013): 227. The majority of sense of place scholarship has tended to argue that “place meanings are slow to evolve, sometimes not matching material or social reality (lag effects), and also tending to inhibit change.” However, some scholars see this as a “blind spot,” arguing that “direct and immediate perception-action processes... (resulting in immediately perceived place meanings) can complement slower forms of social construction presented in sense of place scholarship,” see Raymond, Kyttä, and Stedman, “Sense of Place, Fast and Slow,” 1, 3, 8.

notion of Mexico City as a salubrious place.¹⁸ While their influence was ultimately limited by the state's failure to entertain a policy response to air pollution in the 1960s, this chapter asserts that tourism promoters and scientists were cognizant of ambient pollution and made it palpable to broader audiences in a variety of ways, such as through the production of travel advertising content and scholarly research presented at global academic conferences. In doing so, this most unlikely combination of historical actors left an indelible imprint on the history of the lived experience of urban environmental change in Mexico City.

Mid-Twentieth-Century Tourism Literature and the Creation of Atmospheric Narratives

...La Ciudad, seductora, nos invita a saber de ella; su silueta se nos presenta multiforme; el pasado habla de su grandeza, el presente de sus inquietudes, y surge para el futuro un claro anhelo de superación.

[The seductive city invites us to learn about it; its silhouette appears multiform; its past speaks of its greatness, its present of its concerns, and a clear yearning for improvement arises for its future.]

Enrique Aragón Echeagaray, Architect, *México: Ciudad Multiforme*, 1953¹⁹

Welcome to Mexico City, where aesthetic artistry, cosmopolitan charm and senior statesmanship converge in a creative montage of past, present, and future.

Holiday Inn Crowne Plaza Hotel de México, "Mexico City," Travel Brochure, ca. 1980s²⁰

"The 'Distrito Federal' is still a charming, exciting mixture of Indian, Spanish, and modern Mexican...there are still magnificent museums, beautiful parks...the sights, sounds and smells of the sprawling metropolis provide a fascinating insight into the Mexican personality," wrote the travel editor of *The Washington Post* in a 1969 article titled "Charm of Mexico City." "But don't delay your trip too long," he cautioned, "because magic spells are fragile, and enchantment needs a special kind of

¹⁸ Similar processes took place in California, as Linda Nash shows in *Inescapable Ecologies*. In her case study of the Central Valley, for example, Nash writes of the "emergence of a landscape that produced disease because of its modernization." In other words, agricultural modernization produced not only "[d]ramatic changes in the land" but public health concerns and problems as well. See Nash, *Inescapable Ecologies*, esp. ch. 5, 151.

¹⁹ Enrique Aragón Echeagaray, *México: Ciudad Multiforme* (México, DF: Publicaciones Atlántida, 1953), 8.

²⁰ Holiday Inn Crowne Plaza, Mexico City, *Mexico City*, n.d. [ca. 1980s], Travel Brochure, Box MEX 5, Folder 1, Anspach Travel Bureau Collection of Tourism Literature, 1964–2003, RRBML.

atmosphere.” This disillusionment, he revealed, stemmed from his most recent visit, during which he recalled “there were days when I could have used a gas mask and a helicopter.” He rounded out the review with a harsh critique: “If I want incredible traffic jams, no cabs in sight and polluted air, I can always go to New York City.”²¹ The words of Morris David Rosenberg, the author of the editorial, were damning not just because they put some of Mexico City’s most unappealing features on display or because Rosenberg had cultivated for himself a reputation for reliability, but rather because of the readership associated with a major American daily like *The Washington Post*, which all but guaranteed that the essay would reach a significant number of US households.

Voices and observations of Americans like Rosenberg mattered when it came to Mexico’s tourism industry primarily because Americans have accounted for the dominant percentage of tourists in Mexico ever since the rise of motoring for leisure purposes in the US during the 1930s. With the completion of the Mexican section of the Pan American Highway, a process that spanned from 1936 to 1957 and encompassed three possible routes beginning at the border cities of Nuevo Laredo in the state of Tamaulipas, Ciudad Juárez in Chihuahua, and Nogales in Sonora, hordes of US travelers began regularly recreating in Mexico, enticed further by travel journalism and destination marketing.²² At the dawn of the Jet Age, south-central Mexico became so accessible to the US that in a 1944 *Time-Life* survey of 401 US-based travel agents (**Figure 3.1**), Mexico was projected to receive more American air traffic in the post-World War II era than Europe or the Pacific Islands—nearly rivaling both of these destinations combined—and almost equal traffic as that forecasted for the entire continent of South America.²³

²¹ Morris David Rosenberg, “Charm of Mexico City,” *The Washington Post*, August 31, 1969, 41.

²² According to one report written by the American Consul to Mexico, Dudley G. Dwyre, dated April 12, 1930, automotive travel “has been heavy between the [US] border and Monterrey,” prior to the opening of the first Mexican segment of the Pan American Highway at Nuevo Laredo, Tamaulipas. Dwyre opined that “when the [Pan American] road is completed to Mexico City, there will be a great influx of travelers...” Report mentioned in US Department of Commerce, Bureau of Foreign and Domestic Commerce, *The Promotion of Tourist Travel by Foreign Countries*, Report by Herbert Max Bratter (Washington, DC: US Government Printing Office, Trade Promotion Series No. 113, 1931), 45. By 1939, a reported 300 automobiles entered Mexico through Laredo per day (Laredo had become the preferred entrance point). Figures provided by the manager of the Mexican Tourist Association in Curtis Vinson, “Tourist Travel to Mexico Bulges Upward,” *Dallas Morning News*, August 13, 1939, 11.

²³ While travel agents forecasted air travel to dominate in Mexico, the survey suggested that steamship travel was to remain the preferred form of travel to South America, see Time Inc., Service on Postwar Information, *Tomorrow’s Tourist* (New York: Time Inc., July 1944), 51. The Mexican Government Tourist Department acknowledged the survey, putting out a bulletin together with the Mexican Tourist Association. The clever and timely advertisement

HOW WILL THEY GET WHERE THEY'RE GOING?

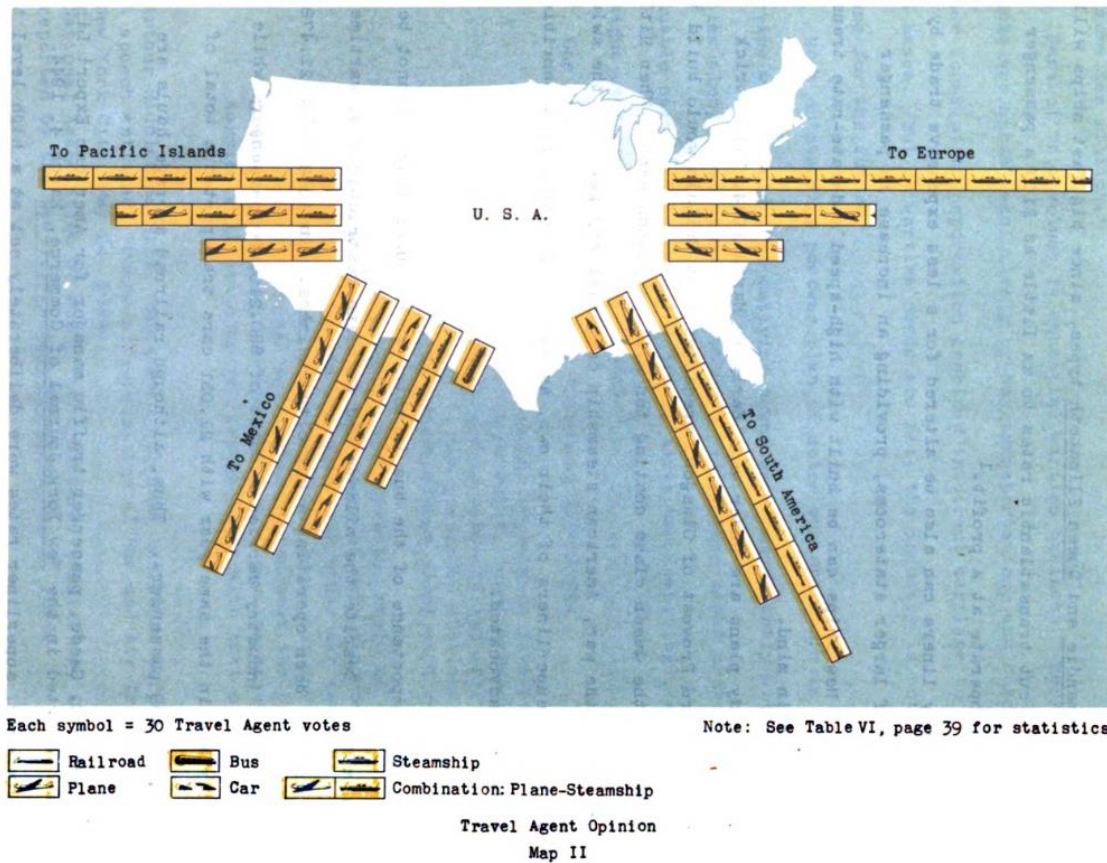


Figure 3.1: Air Travel to Mexico by American Tourists, A Post-World War II Forecast.

Report by Time Inc., Service on Postwar Information, *Tomorrow's Tourist* (New York: Time Inc., July 1944), 25.

While many American families continued to rely on the automobile to reach Mexico well into the mid-twentieth century, a trend evidenced by the reissuing of road tourism travel guides like the popular 1936 handbook titled *Mexico In Your Own Car* and by the ongoing marketing of “drive-yourself” tours in

appeared in US newspapers with the following greeting: “Saludos! We, who are soon to welcome you to Mexico, Salute You!” See Mexican Government Tourist Department and Mexican Tourist Association, “Saludos!” Advertisement appearing in the *Los Angeles Times*, December 15, 1944, 12. Although government and private tourist organizations collaborated on this particular ad, this was not the tourist association’s first time speaking on behalf of Mexico or the government; in 1940 the Mexican Tourist Association took out an ad that read: “Mexico extends a cordial invitation to the people of the United States. In the words of President Cárdenas: ‘Tourists to Mexico are most cordially welcome.’” See Mexican Tourist Association, “Mexico Extends a Cordial Invitation to the People of the United States,” Advertisement appearing in *The Washington Post*, June 23, 1940, F10. Other forms of travel, such as by rail, continued to provide tourists access to major Mexican destinations from coast to coast, from urban centers such as Monterrey in Nuevo León and Guadalajara, Jalisco to coastal cities like Tampico, Tamaulipas and Manzanillo, Colima. These “side trips” could be reached overnight from the starting point of Mexico City, see National Railways of Mexico, *Overnight from Mexico City* (México, DF, n.d. [ca. 1935]).

the 1950s and 1960s (**Figure 3.2**), air travel was attractive in large part because it reduced the weeks-long driving journey required by surface travel to a matter of hours.²⁴ As one report proclaimed, the airplane offered the “quickest magic carpet ride to a change of scene, of language and atmosphere,” opening up Mexico to an even greater volume of US tourists.²⁵ Furthermore, Mexico’s proximity to the US—“just at your elbow, so near and easy to reach” according to Mexico’s Department of Tourism in 1947—assured the availability of plentiful daily flight offerings at low-cost round-trip fares, which widened the consumer base over time, allowing people across the socioeconomic spectrum to be able to afford a vacation to their neighbor to the south.²⁶ Mexicana Airlines, an affiliate of Pan American Airlines, even took to marketing itself as a “one-class jet,” promising “one-class service with champagne, delicious cuisine, and the same low fare [as] on the Rolls Royce superjets.”²⁷ With these developments, then, larger numbers of Americans holidayed in Mexico as the twentieth century progressed, and many made the obligatory stopover in Mexico City. Continued tourist flow to Mexico, it appeared, hinged largely on the opinions of

²⁴ Pan American Tourist Bureau, *Mexico In Your Own Car or Power’s Guide to Mexico for the Motorist*, 1956, Travel Guide, Box 1, Folder 10, Warshaw Collection of Business Americana, Archives Center, National Museum of American History, Washington, DC. See also Departamento de Turismo, *Down to Mexico In Your Own Car* (México, DF: n.d. [ca. mid-1940s]). The PEMEX Travel Club, self-characterized as the “official travel information bureau of Petróleos Mexicanos,” was an important domestic producer of English-language motor tourism guides throughout the midcentury decades of the 1940s and 1950s, see PEMEX Travel Club, *Hints for your Motor Trip to Mexico* (México, DF, n.d. [ca. 1950s]); for more on the PEMEX Travel Club, see Berger, *The Development of Mexico’s Tourism Industry*, ch. 3. Horace Coon, *150 Budget Vacations: From \$100 to \$1,000, From One Week to One Month* (New York: David McKay Co., Inc., 1955), see in particular Vacation Number 88, 89.

²⁵ Airlines marketed air travel, or the “sky cruise,” as the roomier, more luxurious, and air-conditioned way to get to Mexico City. As one brochure summed up: “The ride is so smooth, so easy, so fast, that before you realize it the Mexicana airliner is settling down gently in Mexico City...and you have arrived, rested, relaxed, ready to get the most from your fiesta vacation in wonderful Mexico, see Mexicana Airlines, *Your Fiesta in Mexico*, n.d. [ca. 1960s], Travel Brochure, Box 1, Folder 9, Pan American World Airways, Inc. Records, Printed Materials: Brochures and Booklets: Destinations, Merrick Library Special Collections [hereafter MLSC], University of Miami, Miami, Florida. For quoted material, see Time Inc., *Tomorrow’s Tourist*, 12.

²⁶ Mexican Government Tourist Department and Mexican Tourist Association, “You too must come to Mexico this summer,” Advertisement appearing in the *Chicago Daily Tribune*, June 8, 1947, C2. Pan American Airways’ tentative timetable of world air service for 1948 indicated that only Bermuda was priced lower than Mexico City though there was competitive demand for both destinations, as the airline planned to offer ten daily flights to each location, see Richard Edes Harrison, Pan American World Airways, Inc., “Pan American World System Time Tables,” (New York: Pan American World Airways, 1948), 16–17, Hermon Dunlap Smith Center for the History of Cartography, Newberry Library, Chicago, Illinois. Other ads informed readers that they could be “travel-rich in Mexico” due to peso devaluations, which gave Americans more-than-favorable rates of exchange, see Mexican Tourist Association, “Be Travel-Rich in Mexico at almost 9 to 1,” Advertisement appearing in the *Chicago Daily Tribune*, December 11, 1949, F6.

²⁷ Pan American Airlines and Mexicana Airlines, “Daily Mexicana: One-Class Jet,” Advertisement appearing in the *Chicago Tribune*, July 7, 1963, F10.

travel journalists, who advised visitors where in the country they should go and when, how to get there, and how they should spend their time.



Figure 3.2: Continued Popularity of Car Tourism to Mexico by Mid-Century. Mexican Government Tourism Department, “Discover in Mexico a New World of Thrills!” Advertisement appearing in *Boston Globe*, November 20, 1960, A7. (ProQuest Historical Newspapers Database)

For its part, brochures and travel guides advertised Mexico City as the “experience of a lifetime.”²⁸ By the 1950s, Mexico’s capital was often painted as a “fascinating complex of parks, plazas, boulevards, gardens, old Spanish buildings, new streamlined skyscrapers, and architectural fashions of many periods,” or as one travel writer put it more simply: a “modern city at a boiling point.”²⁹ Providing a visualization of this enigmatic description, one ad by Mexico’s Department of Tourism depicted Mexico City as a city with two faces: on the left side of the image, an aerial view showcases a busy urban scene featuring the Palacio de Bellas Artes surrounded by cars and other structures; on the right is the unmistakable Aztec iconography that dresses the famous pyramids, a remnant of the city’s “mystic” pre-Hispanic past (**Figure 3.3**).³⁰ Its composite parts percolating together “[d]renched [the city] with contrast...”³¹ At the same time, travel journalists also took care to stipulate that certain facets of Mexico City would strike American city dwellers as familiar, likely in attempts to appeal to those for whom such energetic depictions came off as intimidating rather than exciting. “There’s no reason for any American to get homesick or even *casa nauseado* in Mexico City,” wrote travel columnist Horace Sutton in 1956, “Skyscrapers are booming like lower Broadway, neon signs flash in the night, and the elegant Avenida Reforma [is] the local Fifth Ave...”³² This combination of emphases placed on Mexico City’s dizzying newness and its more traditional elements catered to the needs of different kinds of tourists, from the more daring solo explorer to families seeking something not entirely out of the ordinary.

²⁸ Mexicana Airlines, *¡Saludos Amigos! Picture Preview of your tour around Mexico*, n.d. [ca. 1960s], Promotional Booklet, Box 1, Folder 10, Pan American World Airways, Inc. Records, Printed Materials: Brochures and Booklets: Destinations, MLSC.

²⁹ Samuel E. Lessere, *We Retired to Travel: How we Stretched our Minds and our Dollars in Europe* (Garden City, NY: Doubleday & Co., Inc., 1960), 154; Lawrence Martin and Sylvia Martin, *The Standard Guide to Mexico and the Caribbean*, 2nd ed. (New York: Funk & Wagnalls Co., 1956), 161.

³⁰ The Mexican Government Tourism Department, “México: So foreign...yet so near,” Advertisement appearing in the *Boston Globe*, July 10, 1966, A38.

³¹ Aeronaves de México, S.A., *Mexico City: A Taste of Mexico*, 1972, Travel Brochure, Box MEX 5, Folder 1, Anspach Travel Bureau Collection of Tourism Literature, 1964–2003, RRBML.

³² Sutton elaborated that “Mexico, to be sure, adds some local touches of its own. The guard in front of a brand new, shining bank in front of a brand new, shining skyscraper dissuades safe-crackers by strolling up and down equipped with a pistol and a submachine gun,” see Horace Sutton, “Visiting Mexico? Wear an Asbestos Tongue,” *Miami Herald*, January 8, 1956, 195C.

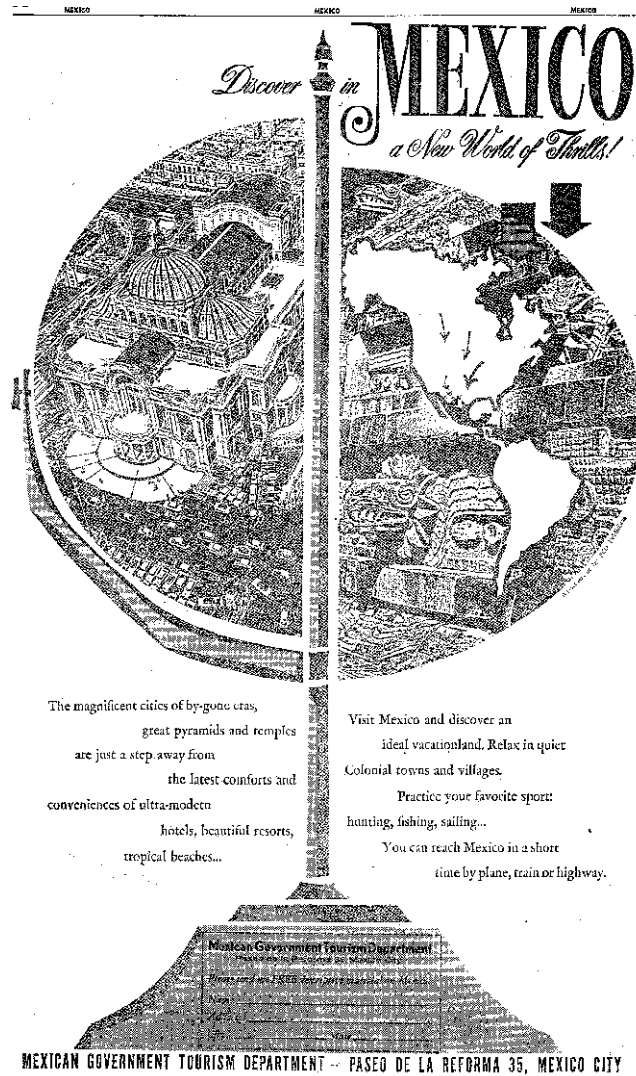


Figure 3.3: Portrayal of Mid-Twentieth-Century Mexico City in US Newspapers. Mexican Government Tourism Department, “Discover in Mexico a New World of Thrills!” Advertisement appearing in *New York Times*, April 10, 1960, X28. (ProQuest Historical Newspapers Database)

Although the more glamorous beach resorts remained incredibly enticing to Americans looking for a seasonal escape or a dose of tropicality, mid-twentieth-century travel guides continued to frame Mexico City as the “pole-star” of Mexico. One promotional booklet reminded readers that “[a]ll roads lead to Mexico City,” and insisted that even Mexicans living elsewhere in the country believed the phrase

“‘I’m going to Mexico,’ [to mean] the capital.”³³ Repeat tourists to Mexico, too, “often made the trip to Mexico City.” This was true of the Waltzer family from Kansas City, Missouri, for whom visiting Mexico City constituted an annual Christmas tradition from 1959 to 1970, one that Janice Waltzer, the eldest daughter, remembered fondly as the “highlight of the year...through all of my childhood” in a recent interview.³⁴ Other advertising material attempted to put into words the pull of Mexico City by labeling it the “Paris of the New World.”³⁵ Reflecting on his sojourn to Mexico, the well-traveled and widely published Samuel E. Lessere of New York City, who wrote a book about globetrotting during retirement, attested that “...to be caught up in the vortex that constitutes the entrance to Mexico City is to parallel the bewilderment experienced in some of the traffic hubs in Paris.”³⁶ Owing to persuasive marketing campaigns, praiseful publicity abroad, and the city’s centralized location (it was a hub for flights to other Mexican destinations), Mexico City thus remained well-frequented by American tourists going into the second half of the 1900s.

In the mid-twentieth century, US newspapers began attributing the success of Mexico’s tourism economy to American tourists themselves, arguing that “American officials and informed Mexicans” alike understood that the country’s “continued prosperity depends almost entirely upon good economic conditions in the United States.”³⁷ By the early 1960s, Americans made up 90 to 95 percent of all tourists to Mexico, thanks in no small part to the Mexican government’s “energetic program of promotion and advertising” of which 1.6 billion pesos, or 95 percent of its total marketing budget for 1960 to 1961, was

³³ Martin and Martin, *The Standard Guide*, 161. See also “Travel Expert” Leonore Muller’s earlier assessment of Mexico City in which he claims that the “word ‘City’ is silent [in Mexico] as in New York.” Leonore Muller, “Mexico: Just Next Door,” *The Delineator* 126, no. 5 (May 1935): 43–44, clipping in Home Economics Archive: Research, Tradition, History, Digital Collections, Albert R. Mann Library, Cornell University, Ithaca, New York.

³⁴ Janice Waltzer Curtis, interview by author, July 15, 2019. See also, Ross and Muriel Waltzer, *An Early Flight to Mexico*, ca. late 1950s, Color Photograph, Janice Curtis Family Travel Photograph Collection. Curtis recalled that her parents, Ross and Muriel Waltzer, instilled in her a love for Mexico, and that her father was a “Mexican at heart.” The two traveled through Mexico and Central America in their Woodie, a Ford-manufactured, brown-and-wood-paneled station wagon named Rozinante, in the 1940s. See Ross and Muriel Waltzer, *Rozinante*, ca. 1940s, Scanned Slide, Janice Curtis Family Travel Photograph Collection.

³⁵ “A Warm ‘Embrazo’ to Americans! Mexico Bids You Come and Enjoy Its Beauties,” Advertisement appearing in *The Boston Globe*, September 27, 1959, A5.

³⁶ Lessere, *We Retired to Travel*, 154.

³⁷ Russell Brines, “American Tourists Help Keep Mexican Economy Prosperous,” *San Pedro News*, February 17, 1956, 5.

spent on the US.³⁸ Mexico's Tourist Bureau ushered in the 1960s with propaganda appearing in an array of US magazines, the Sunday supplements of "major newspapers," and looked to expand regular print advertising to a total of twenty-nine city newspapers in order to provide Americans with readily available and up-to-date information about prices, services, and new vacation destinations.³⁹ During this time, ordinary Americans were made aware of the power they held in their role as tourists of Mexico. In 1962, for example, residents from towns across the US awoke to news alleging that "[t]ourism is so important to Mexico that old Joe Bloke of Goose Creek has almost as much influence with the Mexican government as with the big shots in Washington." The piece, syndicated in at least forty-eight cities during the month of January, from those as small as Klamath Falls, Oregon to larger, well-populated areas like Tampa, Florida, clarified that, "[i]t isn't because Mexicans like old Joe Bloke. They like—and badly need—his Yankee dollar." "Almost without trying," the article declared somewhat flippantly, "Mexico has developed a tourist industry which has helped build its economy to a point where it is among the tops in Latin America."⁴⁰

Underneath this shiny veneer, however, was a unique fragility laid bare by a string of political incidents. During the 1960s, civil unrest and foreign policy disagreements most plainly exposed the volatility of Mexico's tourism industry. In November of 1958, for instance, a *Chicago Daily Tribune* editorial announced that "student and labor demonstrations" caused business in Mexico City to "abruptly slack off" after a "hopeful upswing of hotel reservations" in August.⁴¹ Overall, however, tourism was

³⁸ Ida Belle Hicks, "American Tourists Get 'Break' in Mexico Trip," *Fort Worth Star Telegram*, October 8, 1961, 8; Larry Allen, "Most Mexicans Like Americans," *Fort Worth Star Telegram*, May 12, 1962, 3; Betty Martin Sullivan, *A Look Abroad: The Effect of Foreign Travel on Domestic Outdoor Recreation and a Brief Survey of Outdoor Recreation in Six Countries*, Report 18 to the Outdoor Recreation Resources Review Commission (Washington, DC: US Government Printing Office, 1961), 67.

³⁹ "Mexico Planning Tourist Campaign," *The Vernon Daily Record*, January 19, 1960, 3. At the same time, the Mexican Government was in the process of establishing offices in large cities around the world. These included: New York City, Chicago, Washington DC, Miami, New Orleans, San Antonio, Houston, San Diego, and Los Angeles in the US; Montreal and Toronto in Canada; Hamburg, Germany; and Havana, Cuba. See The Mexican Government Tourist Bureau, *Mexico* (México, DF, n.d. [ca. early 1960s]).

⁴⁰ Jack Rutledge, "Mexico Depends on Tourism," *Progress Bulletin*, January 9, 1962, 3. The republication of this commentary was widespread, and likely reached more than the forty-eight cities located by the author.

⁴¹ Localized uprisings also had repercussions on tourism. According to another article, in 1958, "The tourist business, already in a slump in Mexico this year, fell off sharply after the recent wave of violence and street fighting," see Marion Wilhelm, "Mexico Casts About to Curb Tourist Slump," *Chicago Daily Tribune*, November 9, 1958, E16.

elastic in the face of such occurrences, which were not entirely uncommon and had surprisingly mild effects on tourist influx compared to other political interruptions of a more internationally relevant scale, such as revolutionary stirrings in Cuba. Incited by the Cuban Revolution, US newspapers broadcasted that “outburst[s] of Anti-United States feeling,” had proliferated in Mexico, leading to “slow tourist movement,” at multiple points in the late 1950s and early 1960s.⁴² Furthermore, uncertainty about whether Mexico would recognize the new Cuban government led by Fidel Castro left US-Mexico relations a “question mark” and reporters correctly ascertained that the outcome of such circumstances would have direct implications on the future stream of tourists and, by extension, economic revenues, received by Mexico.⁴³ Although geopolitics and human-centric conflicts dictated the industry’s peaks and troughs, from the macro-level vantage point of the twentieth century, tourism was extremely successful in Mexico—indeed, one report from the early 1960s labeled it a “year-round phenomenon.”⁴⁴

Events beyond the bounds of human control also deeply affected tourism in Mexico. Nature-induced disturbances and weather-related emergencies, such as floods, earthquakes, and hurricanes, altered both the physical landscape and popular perceptions of Mexico’s most beloved destinations by rendering threatened environments inhospitable to tourism activity. Such was the case for Acapulco in February of 1957, when a powerful earthquake threw officials into a “...temporary uproar by the thought that some of this business [within the tourism and hospitality sector] might be jeopardized by...‘exaggerated’ reports” of destruction caused by the quake.⁴⁵ In Acapulco’s case, the negative impacts of the wreckful storm were not irreversible; crews debris was promptly cleared, resorts swiftly restored to their full operational capacity, and the town’s reputation subsequently salvaged by the application of clever marketing as a damage-control measure. However, in other cities, such as the capital, slowly developing and perplexing environmental conditions like air pollution, which lacked the tangible

⁴² Paul Kennedy, “Mexico Has No Doubts About 1959,” *New York Times*, November 2, 1958, 29.

⁴³ Rutledge, “Mexico Depends on Tourism.”

⁴⁴ Thom Gephardt, “Tourism in Mexico: Year-Round Business,” *Cincinnati Enquirer*, January 21, 1962, 13C.

⁴⁵ Brines, “American Tourists,” 5. After the historic 1906 San Francisco earthquake, business interests also downplayed and denied the region’s “seismic past,” in the name of continued real estate development, as Ted Steinberg has pointed out. See Ted Steinberg, *Acts of God: The Unnatural History of Natural Disaster in America*, 2nd ed. (New York: Oxford University Press, 2006), 32–33.

damages left behind by rapid-onset catastrophes, were unamenable to a quick clean-up effort. Yet, as those on the frontlines of Mexico's tourism industry—travel agents, hospitality business owners, and laborers at the operational level such as tour guides—would quickly come to find, a contaminated atmosphere similarly tested the strength of Mexico City's image abroad.

Tourists, anticipating the land of transparent, “cleanwashed” air, “sparkling [and] invigorating...a tonic to the body” during the dry winter months and in the summer, “delightful,” freshened by daily showers, did not shy away from making their disappointment about Mexico City's congested sky known.⁴⁶ Ambient pollution unsettled geographer Florence Whitbeck Tillman's opinion of Mexico City in 1956, who recalled with surprise the intensity of the pollution she encountered, which was so thick that it prevented her from obtaining an accurate reading of Mexico City's environs while on assignment. Flying over Mexico, Tillman wrote that “[a]s one approached Mexico City, one expected to have a beautiful view of the twin peaks of Popocatepetl [*sic*] and Ixtacihuatl [*sic*]. However, they were invisible,” she noted, “the whole valley and the surrounding mountains [were enveloped] in a fog-like dust cloud of brownish-yellow.”⁴⁷ Mid-twentieth-century aerial photography provides a representative picture of the conditions Tillman witnessed (**Figure 3.4**). Another airplane observer and first-time visitor, William M. Taylor of Moab, Utah, had a similar experience as he hovered over the city in December of 1969 in a Cessna 172 with his wife and three children to spend four days there on vacation. Upon his return, Taylor, a self-described “pollution conscious” Supervisory Park Ranger with Utah's Canyonlands National Park, gave a local newspaper an account of his trip. The Park Service officer spoke highly of the sprawling city, recounting that the family felt as if they “needed a month” to fully experience all that

⁴⁶ The Mexican Government Tourist Department and Mexican Tourist Association, “Mexico: The Victory Fiesta Land, Where Your Long-Overdue Vacation Soon Will Be Realized,” Advertisement appearing in the *Daily Boston Globe*, April 14, 1946, 18; PEMEX Travel Club, *Notes about Mexico's Climate* (México, DF, n.d. [ca. 1950s]).

⁴⁷ Tillman eventually secured a look—albeit a hurried one—at the city's surface features. She wrote about the experience: “Momentarily the plane penetrated down thru [*sic*] the dust layer and the wide expanse of Mexico City was in view,” she reflected, “a checkerboard of streets and flat-topped buildings punctuated here and there by the spires and the shining tiled domes of the churches, and a few modern skyscrapers. One had little time to study the city and its environs,” she concluded. See Florence Whitbeck Tillman, “Geographic Landscapes from the Air,” *Journal of Geography* 55 (January 1956): 126–127.

Mexico City had to offer. “Terrible smog, though,” the Utahan concluded dismissively, a judgement that appeared to have definitively outweighed the aforementioned positive aspects.⁴⁸



Figure 3.4: Airscape of Mexico City, Popocatépetl and Iztaccíhuatl Masked by Haze. Compañía Mexicana Aerofoto, S.A. de C.V./United States War Department, Army Air Forces, “29. General View of Mexico City with Volcanoes in Background,” photographic print, ca. 1947, RG-18-AA-175-25, National Archives.

Increasingly frequent consumer grievances like Taylor’s led some perceptive tourism boosters to argue that pollution constituted an economic loss. For example, in a 1967 exposé published in an American periodical, an unnamed hotel manager reasoned that although “...no one from the government’s tourism agency seems concerned enough to make an issue out of the situation...[s]omething should certainly be done [about air pollution].” “Tourists are complaining,” he added, “and we cannot expect repeat business here in the city when the skies are bluer in any number of

⁴⁸ “Moab Family Tour by Air in Mexico,” *The Times-Independent*, January 8, 1970, 9.

other places.”⁴⁹ In maintaining anonymity, it is possible that the informant desired to protect their business from an onslaught of negative publicity from state-controlled media outlets or, worse yet, from retaliatory action. Just as importantly, however, this confidentiality indicated that air pollution was not only considered a nonissue in contemporary public discourse, but it also revealed the cultural norms guiding the way everyday actors broached such topics on the ground. Although air pollution had not yet entered the realm of official politics, speaking out about the quality of the air was clearly perceived as a political act.

Un beholden to the undeclared bureaucracy regulating dialogue about the air in Mexico’s capital and galvanized by the coterminous environmental plight of cities across the US, American news outlets provided liberal coverage of Mexico City’s air pollution throughout the 1960s in the form of both investigative and travel journalism. Whether knowingly or not, correspondents assigned to Mexico’s travel beat built on the foundational insights of another group, the producers of travel manuals, who had by the 1950s already begun calling tourists’ attention to the “haze that hangs over the city,” which one guidebook from 1956 determined, “is not as aggressive as the smog of Los Angeles or the fog of London, but it grows thicker ever year.”⁵⁰ The cultural productions of travel journalists were staunchly subjective, indeed, but this fact stoked rather than staved off public approval, as audiences sought to visit foreign places already vetted by their peers or more seasoned professional travelers. Columnists, unlike the authors of the more formal, researched tourist manual genre, came off as trusted confidants extending recommendations to readers and passing judgements on destinations based on their personal experiences and knowledge of evolving political and social conditions in the locations of interest. In weekly travel segments as well as in the more comprehensive travel editorials, newspapermen fielded questions from teenagers, families, and retirees alike; in doing so, they fomented and maintained a discourse that crossed generational and class boundaries. These travel features, often brief and composed using accessible language, took form as travel review essays or adopted a more conversational style in

⁴⁹ Patricia Nelson, “Mexico Battles Smog: New Diesel Oil Tested,” *The Christian Science Monitor*, March 18, 1967, 3.

⁵⁰ Martin and Martin, *The Standard Guide*, 82.

which writers doled out advice in response to inquiries mailed in by the traveling public. Notwithstanding this variety in format, travel journalists assumed narrative control over the portrayal of Mexico City to American audiences; their texts not only helped tourists make logistical travel decisions but shaped vacationers' experiences once abroad.

Among the medley of travel columns in circulation at the time, Pulitzer-Prize-winning journalist-turned-travel-writer Stanton Hill Delaplane's "Around the World with Stan Delaplane," printed Sunday mornings in newspapers like the *San Francisco Chronicle* and the *Chicago Tribune* starting in the 1960s, was regarded as the authority on all things associated with the tourist experience in Mexico.⁵¹ Despite being the victim of a politically-motivated arrest during one of his first visits to the country in the late 1930s, Delaplane himself had a penchant for the country, one culled from decades of recreational and work-related travel to Mexico.⁵² In his early appraisals of Mexico City, Delaplane wrote affectionately about the "exciting capital" and its atmospheric allure: "At 7,400 feet Mexico City literally took my breath away," he divulged, carrying on to predictably comment on the bodily changes—"[u]nseen but dramatic"—that take hold of first-time visitors upon entrance to a city with a perpetual "shortage of oxygen."⁵³ Delaplane's article also presented a positive spin on Mexico City's infamous dust pollution by poetically weaving it into a romanticized portrait of the city. "There's a saying down here that if the dust of Mexico falls on your heart, you will always return," he began, "[t]his has always been a town I get with. The tree-filled avenues. The brooding stone gods in the museums. The Cadillacs outside the fine restaurants. The

⁵¹ In a tribute to the memory of Delaplane, journalist Jerry Hulse wrote that "[i]n his travels, [Delaplane] particularly enjoyed Ireland and Mexico. His columns were homespun, light, aimed at the ordinary soul who frequently could travel only vicariously," see Jerry Hulse, "30 for Stan Delaplane, a Maker of Memories," *Los Angeles Times*, April 24, 1988.

⁵² Delaplane disclosed the details about this most unfortunate episode after being prodded by a reader to expand on a previous remark about this experience. "We have been nervous about our first trip to Mexico. More so now since you said you were arrested but didn't say why," read the inquiry, to which Delaplane explained that, "There was a political shooting. A Sunday afternoon in a nice family type restaurant. The police grabbed me. They ran me down a side street and let me pay off a small sum. (They said I had laughed at them. Not likely since I was scared stiff when those guns went off.) But this was 30 years ago," he assured, "Americans were in bad favor in Mexico." He assuaged the worried reader's fears by giving insight into current attitudes towards tourists: "The tourist is loved in Mexico now. (I got lost one night in Mexico City and the police gave me a car escort back to my hotel.) Go with God—as they say down there. You'll like Mexico." See Stanton Hill Delaplane, "Around the World with Stan Delaplane," *Chicago Tribune*, December 28, 1969, 8.

⁵³ "It does that to people sometimes," he continued, "[y]ou are astonished to be winded after a two-block walk..." see Stanton Hill Delaplane, "Around the World with Stan Delaplane," *Chicago Tribune*, December 3, 1967, 20.

Indians and their burros at the taco stands in the old city the Aztecs called Tenochtitlan [*sic*]. The great square of Mexico lighted at night. The snowy volcanoes in the clear morning air...”⁵⁴ Environmental attributes, as Delaplane’s reviews collectively demonstrate, communicated the perceived worth of destinations such as Mexico City. Even unpleasant phenomena, like its dust storms—in this rendition, a valorized feature of the cultural landscape reconciled as “natural” in comparison to its human-generated smog—worked in Mexico City’s favor, restyled as a reminder of the characteristically quaint city that once was.

Delaplane’s sentimentalism was short-lived, however, because by 1969, just two years after the publication of his glowing assessment of Mexico City, the no-nonsense travel writer appeared to have changed his mind. To be sure, Mexico continued to rank highly on Delaplane’s list of travel recommendations, but he had begun pushing inquiring minds to explore beyond the megalopolis. For instance, in response to a reader asking for advice on “somewhere in Mexico” to spend a month, the plainspoken Delaplane passed over Mexico City, explaining that his about-face stemmed from the fact that “Mexico City is too crowded,” and adding that “[t]he smog is frightful—you couldn’t keep me in Mexico City more than a couple nights...Try smaller towns,” he advised.⁵⁵ Lesser known reporters, such as Gilbert H. Koenig, the managing editor of the Wisconsin newspaper *Waukesha Daily Freeman*, could also be found steering visitors away from the capital. In one travel review, Koenig swooned over Taxco, Guerrero, located 110 miles southwest of Mexico City, noting that “[f]or the US tourist, [Taxco]...is such a delightful change from the hurly-burly, smog-filled giant that Mexico City has become that to leave it is a chore.”⁵⁶ Neither critique was as incriminating or detailed as that of Ted Rushton’s, a writer for the

⁵⁴ Stanton Hill Delaplane, “Around the World with Stan Delaplane,” *Chicago Tribune*, January 1, 1967, T4.

⁵⁵ Stanton Hill Delaplane, “Around the World with Stan Delaplane,” *Chicago Tribune*, July 13, 1969, 4H.

⁵⁶ Gilbert H. Koenig, “Taxco Sits Like Eagle Above City of Cuernavaca,” *Waukesha Daily Freeman*, January 30, 1970, 16. An earlier feature described the “interesting but unpleasant experience” of driving through Mexico City: “Since there are no zoning laws, one need not search out smog sources. Black smoke billows from small factory stacks only a few blocks from the downtown business district and even within areas that are predominantly residential. Motor vehicle fumes add to the chemical-laden haze...A large portion of the trucks and buses are diesel burners that lay a poisonous smoke screen in their wake...The concoction of smoke and fumes frequently becomes weighed down with heavy morning fogs, pushing the ceiling to zero and delaying air traffic until either the sun burns off the black-blue pallor or a propitious breeze carries it away.” Tourists, the report continued, are lucky to see Popo and Izta [*sic*] because the “...clear days are fewer and fewer, and many visitors...never glimpse the famous snowcapped peaks

New Mexico daily *The Gallup Independent*, in which he claimed that Mexico City's "'Old World' pedestrian charm has disappeared," and that tourists would have difficulty engaging in the most basic of touristic activities, such as taking photographs of the city's otherwise beautiful scenery. "Mexico City," he wrote,

[i]s straining at the seams to accommodate the massive invasion of the modern phenomenon of the automobile...The deluge of traffic in Mexico City is creating a growing crisis in the form of pollution. Mexico City is a cauldron in which perhaps a million vehicles percolate daily, each adding to the pollution and grime. On some days the smog settles in so quickly in the morning that it is almost impossible to see anything a city block away. Even on good days the early morning visibility is limited to about a quarter mile. The sun does its daily best, roasting down on the city and 'burning off' most of the smog. By noon it is feasible to take photographs, provided the distance is not too great. By mid-afternoon the situation has improved to the extent that clear pictures are possible for distances of up to a couple of miles.⁵⁷

Smog, as these narratives demonstrate, disrupted visitors' expectations, experiences, and, consequently, their opinions of the city. In many of these accounts, atmospheric pollution dramatically ruptured a historically and culturally conceived sense of place, one which the traveling public had come to know as dogma and which twentieth-century tourism promoters within and beyond Mexico City worked hard to maintain in spite of the fact that it no longer corresponded to the reality that vacationers confronted.

For their part, travelers (both recreational and professional), it seemed, were incredibly sensitive to the discrepancies between advertised and actual experiences. While ads ensured that a holiday stay in Mexico would leave tourists feeling "so healthy...wealthy...and wise..." the air in highly frequented destinations like the capital clued foreign visitors in to the possibility of an alternative tourist experience.⁵⁸ Tourists, christened the "interpreter[s] of the beauty, history, and cultural background of Mexico," by the Mexican Tourist Association, noticed the chronic haze in part because it quite literally blocked visual

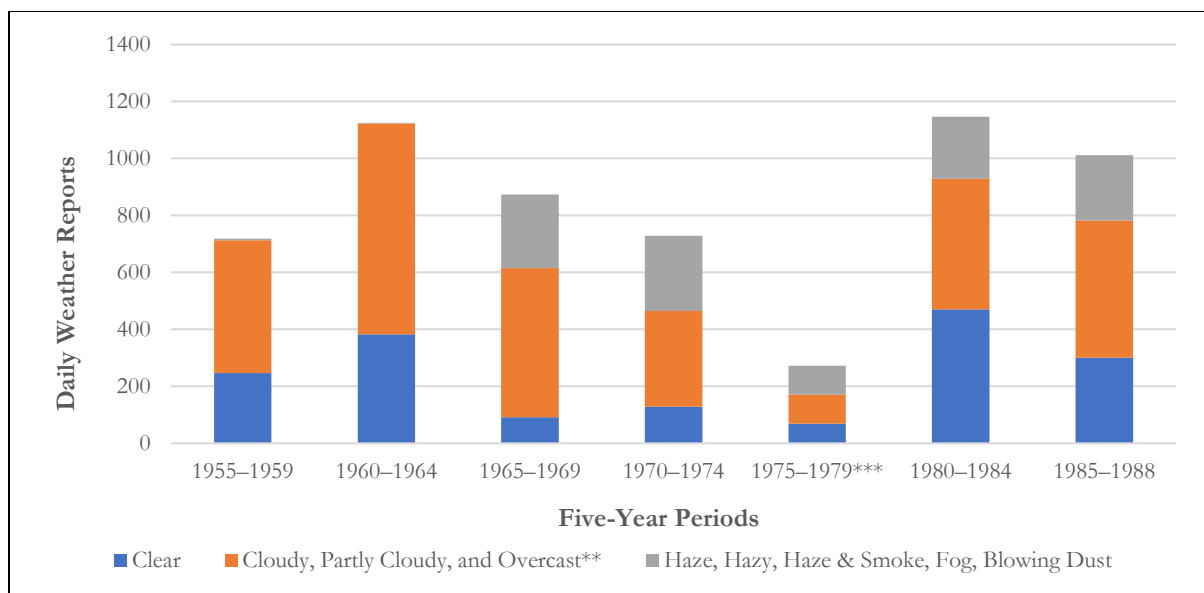
because of the smog." See Patricia Nelson, "Action urged: Smog irks Mexicans," *The Christian Science Monitor*, February 25, 1966, 12.

⁵⁷ Ted Rushton, "The Independent Outlook," *The Gallup Independent*, February 24, 1971.

⁵⁸ Healthy because of the "bright, year-round spring weather of the central plateau or on palm-edged tropic beaches..." Wealthy because "you'll be amazed at how much luxury, good food and 'fiestivity' will fit into your holiday budget..." Wise because "you'll photograph temples older than history next to hotels as modern as tomorrow [and] you'll come home in love with the gracious way of life that lies just across the border." See The Mexican Government Tourist Bureau, "Wonderful Mexico has Everything!" Advertisement appearing in the *New York Times*, January 5, 1955, 73. The title of this advertisement was quite common in newspaper advertising campaigns. The content, however, was unique to the individual ad. While such ads clearly put the entire country under a spotlight, in many ways, the list of positive characteristics was entirely representative of Mexico City, too. One 1960s ad even claimed that "Mexico City is the image of all of Mexico." See The Mexican Government Tourism Department, "The place to go is México (City)," Advertisement appearing in the *New York Times*, August 22, 1965: XX20.

access to natural geography and manmade monuments, attractions that were relentlessly advertised in twentieth-century travel brochures, newspaper advertisements, tourist maps, and guidebooks.⁵⁹ Indeed, a review of daily weather reports over a thirty-year period from 1955 to 1988 corroborates tourists' informal, sensory-based observations of atmospheric deterioration. Records reveal that, throughout the 1960s, the occurrence of polluted days increased by 30 percent at the expense of clear days, which decreased by 24 percent (**Table 3.1**). By the early 1970s, 37 percent of the total daily listings indicated contaminated conditions, and some tourists, like Gordon Quarnstrom, described feeling caught off-guard by a period of “surprisingly good weather...when the days have been clear and sunny.”⁶⁰

Table 3.1: Categories and Compositions of Five-Year Aggregated Weather Reports, 1955–1988*



Sources: Daily weather reports for Mexico City from 1955 to 1988 as available from the ProQuest Historical Newspapers Database, and specifically from the *New York Times*, the *Los Angeles Times*, the *Chicago Daily Tribune*, and the *Washington Post-Times Herald*, which began publishing actual temperature and climatic data for Mexico City in 1955. Access to digitized and easily searchable content proved indispensable in order to conduct a systematic search over three decades; such material was not available for Mexican newspapers across the same time period.

⁵⁹ Mexican Tourist Association, “Mexico Extends a Cordial Invitation,” F10.

⁶⁰ Gordon M. Quarnstrom, “Mexico City is ultimate choice,” *Hotel Camino Real, the Royal Road of Mexico: Mexico City Newsletter* (n.d. [ca. early 1970s]), Box MEX 5, Folder 1, Anspach Travel Bureau Collection of Tourism Literature, 1936–2014, RRBML.

*The goal of this visualization is to identify long-run changes in daily weather conditions rather than year-to-year short-term variations. Therefore, the graph presents daily meteorological observations as aggregated into five-year periods, with the exception of the final grouping, which encompasses data for a four-year period in response to limited results for 1989. The five years between 1970 and 1974 were witness to the most pollution readings, or 264 reports. The second-highest-yield grouping and also the time period under consideration in this chapter, from 1965 to 1969, amounted to slightly fewer reports—258—but laid claim to the most reports on a single-year basis, which occurred in 1967, when the city experienced 149 days with pollution.

****Note on terminology:** This graph depicts the three categories most commonly used to describe daily weather in cities across the US and select cities globally: clear, cloudy, and hazy (for the sake of simplicity and consistency, the latter two are groupings of various iterations of the word, as displayed in the key). The term “cloudy,” however, is somewhat ambiguous, as it broadly denotes general cloud coverage at the expense of clarity or the blueness of the sky, and thus says less about the air quality than do “clear” and “hazy.”

*******In comparison to all other five-year aggregates, there were less total daily weather records available electronically for the period between 1975 and 1979. However, of the extant reports for this cluster, the share of hazy days reached a zenith during this time period at 37.1 percent.

In their often-discontented reviews, air and the sky emerge not only as agents in the creation of place meaning, as in the above excerpts, but as particularly useful mediums through which travelers, knowledgeable about the historical relevance of air—and, specifically, of transparent air—to portrayals of the city, could articulate the inconsistencies they encountered. Rushton, for example, communicated his dismay over Mexico City’s pollution when he wrote that, “[a] century ago, Queen Carlota could lie in bed in the palace in Chapultepec Park and watch her husband [Emperor Maximilian] drive to work down the Reforma [Avenue] to the National Palace. If she were there today,” he continued, “it would be hardly possible to see him leave the park grounds.”⁶¹ Adhering to a similar approach to describe atmospheric conditions, a *New York Times* reporter extended the connection further back to the colonial period. “Historians say that when Cortez gazed at the 15,000-foot-high volcanoes, Popocatepetl [*sic*] and Ixtaccihuatl [*sic*]...he stood speechless. If Mexico City’s smog continues to worsen,” he lamented, “modern-day residents will have trouble even being able to distinguish the eternally snow-clad peaks...” Though he conceded that the “pollution...has thinned out somewhat in recent years [by the 1970s],” he

⁶¹ Rushton, “The Independent Outlook.”

added that “even on a clear day, you’ll hardly see forever.”⁶² Still another columnist, describing the capital as it appeared in 1965, “pinned, most of the time, under a thick veil of murky dust, fog, and smoke,” made mention to the “old-timers...[who] can recall the pristine blueness of the sky, when the distant volcanoes were as clear as postcard pictures of Fuji.”⁶³ Such observations give insight into the obvious transformative power of the air and the sky in tourists’ perceptions of the city, demonstrating that descriptions of “mile-high Mexico City,” where “the scent of brilliant flowers pervades the air” and where visitors were promised “one blue-sky vacation day after another,” had become increasingly antiquated by the 1960s.⁶⁴ To experience Mexico City as a mid-twentieth-century tourist was, as these excerpts let on, to endure its pollution.

Written expressions of disenchantment penned by midcentury travel reporters and travelers, many of whom took issue with, or were at minimum surprised by, Mexico City’s stifling atmospheric pollution, exposed an intangible but festering environmental condition. Photographs, while less bountiful of a historical source in the context of midcentury tourism to Mexico City, functioned in much the same manner. In particular, Wisconsin-based photographer Harrison Forman’s 1960s still images of the city, taken from the heights of the Torre Latinoamericana, display an opaque film of pollution, which turned the sky grey and concealed its mountain-studded skyline from sight.⁶⁵ A prominent smog also spoiled a celebratory aerial snapshot of US President John F. Kennedy’s historic wreath-laying ceremony at the Columna de Independencia during his 1962 goodwill tour, undertaken in promotion of the Alliance for

⁶² Robert J. Dunphy, “What’s Doing in Mexico City,” *New York Times*, November 9, 1975, 11. Barry Bishop, a *Chicago Tribune* reporter, also referenced Cortés to explain the impact of air pollution on perceptions of the city. He wrote that while Mexico City’s “thick, dark blanket of smog” was a “common sign of the modern industrial age...[i]f Hernan Cortez [*sic*], the Spanish conquistador, were to come back to the region where he began building his palace in 1530, he might feel a bit sad over present-day developments.” See Barry Bishop, “Report from Mexico: Mexico City Also Feels Sting of Progress,” *Chicago Tribune*, June 18, 1967, A8.

⁶³ David Weber, “Mexico Tackles the Problem of Smog,” *Dallas Morning News*, September 16, 1965.

⁶⁴ Economical Circle Tours, “Mexico: Vivid, Vital Land of Amazing Contrasts—Right Nearby!” Advertisement appearing in *The Washington Post*, December 7, 1941, F7; The Mexican Government Tourist Department and Mexican Tourist Association, “Enjoy your ‘Furlough’ This Year in Mexico,” Advertisement appearing in the *New York Times*, June 14, 1942, XX20; The Mexican Government Tourist Bureau, “Wonderful Mexico has...” Advertisement appearing in the *Chicago Daily Tribune*, September 26, 1954, K2.

⁶⁵ Not depicted, but accessible via the University of Wisconsin-Milwaukee website. See Harrison Forman, *Mexico, Mexico City cityscape*, n.d. [ca. 1960s], Color Photograph 11a, Harrison Forman Collection, American Geographical Society Library Digital Photo Archive—North and Central America, University of Wisconsin-Milwaukee Libraries, Milwaukee, Wisconsin.

Progress.⁶⁶ In perhaps one of the most recognized photographs to come out of Kennedy's trip, the shimmering Ángel de la Independencia, situated on top of a pillar extending nearly 150 feet from the ground, is surrounded by the sprawling city, much of it lost to the haze of the tarnished sky (**Figure 3.5**).



Figure 3.5: Enveloped in Smog: Aerial View of Mexico City from the Ángel de la Independencia. Cecil Stoughton, "Trip to Mexico: Wreath laying ceremony, Independence Monument, 9:05 AM," June 30, 1962, digital photograph, Acc. ST-C1-16-62, Folder ST11, KN19, John F. Kennedy Presidential Library and Museum, White House Photographs Collection.

⁶⁶ President Kennedy and First Lady Jacqueline Kennedy traveled to Mexico City in late June of 1962, becoming the capital's most famous mid-twentieth-century tourists in the process. During their three-day tour, cameras followed their every move, from visits to museums and the National University's campus, to dinner at the National Palace, to President Adolfo López Mateos's mansion at Los Pinos for the traditional exchange of gifts between the two leaders, and to various formal receptions held in ornated ballrooms. On the morning of June 30, the second day of Kennedy's trip, cameras continued to track the presidents and a coterie of Mexican and US ambassadors and bureaucrats to the Columna de Independencia, where hundreds of onlookers had congregated, waiting for the display of cooperation between the two nations. See United States Information Service, *Progress through Freedom: The President's Trip to Mexico, 1962: 29 June–1 July*, 1962, Motion Picture, USG-01-J, United States Government Agencies Collection, John F. Kennedy Presidential Library and Museum, Boston, Massachusetts.

Such images, while few and far between, give visual substance to travelers' allegations of a pollution problem, debasing contemporaneous sales pitches made by tourism promoters, like that of Aeronaves de México, a popular commercial airline, which in one early-1960s ad asserted that visitors could "sightsee in Mexico City without really trying."⁶⁷ The indiscernibility of Mexico City's mountains or even its modern towers and buildings in the skylines of panoramic photographs like that depicting President Kennedy's participation in the commemorative service below suggested otherwise.

Although tourism marketing could no longer make grand claims about "the always-blue Mexican sky" by the 1960s or frame picturesque vistas spanning a seemingly limitless distance as effortlessly attainable by the everyday tourist, those involved in promoting tourism devised alternative advertising strategies to diffuse the negative attention brought to the city by tourists unsatisfied with its dirty air and journalists who sought out to investigate its pollution.⁶⁸ In doing so, they became unintentional contributors to the fledgling discourse on atmospheric deterioration in Mexico City. To be sure, these new marketing tactics were rather subtle in their treatment of the elusive condition of air pollution; marketers did not completely do away with the tradition of advertising the capital's elemental aesthetics. Some companies, such as Aeronaves, attempted to carry on boasting about the "beautiful view of the entire Valley of Mexico" as seen from elevations like the terraces of the Chapultepec Castle, a view that one 1960s travel brochure described as a "vast panorama circumscribed only by the hills which enclose the horizon." Yet the same publication also made sure to add the caveat that only "[o]n particularly clear days...are the two snow-clad volcanoes visible to the east [and] the Nevado de Toluca...to the west."⁶⁹

As Chapter One has expressed, taking in the valley's atmospheric beauty from altitudinous vantage points was, after all, a customary, if not therapeutic, component of the tourist experience in

⁶⁷ Aeronaves de México, S.A., "How to Sightsee in Mexico without really trying," Advertisement appearing in the *New York Times*, March 29, 1965, 37.

⁶⁸ The Mexican Government Tourist Bureau, "Wonderful Mexico has Everything!" Advertisement appearing in *The Boston Globe*, December 12, 1954, B4.

⁶⁹ Aeronaves de México, S.A., *Highlights of Mexico City* (México, DF, 1960). Nevado de Toluca, or Xinantécatl in Nahuatl, lies fifty miles west of Mexico City. By many accounts an extinct volcano, it reaches 15,354 feet at maximum altitude, making it the fourth-tallest peak in Mexico after Pico de Orizaba, Popocatepetl, and Iztaccíhuatl.

Mexico City; it was an activity in which voyagers from centuries prior and modern-day jetsetters alike zealously partook. Advertisers would have thus been remiss not to continue giving publicity to such forms of touristic recreation. But by the same token, visitors had also come to expect certain defining features of the material landscape, namely the resplendent volcanic peaks protruding from the distance, renowned for their cultural and historical significance, to remain detectable in spite of the atmospheric changes resulting from industrial development and urbanization. More often than not, however, visitors found that the pollution “blotted out the snow-capped mountains from view,” which led some tourists, such as American journalist and scholar William Weber Johnson, to reflect melancholically on more pleasurable visits to the capital, when the air was clearer. Such recollections expose the importance of air and the sky to perceptions, memories, and experiences of the city: “When I first went [to Mexico City] 30-odd years ago,” Johnson reminisced in 1968, “the light was clear, the sun hot, the shadows chilling at that altitude...Otherwise the air was clean, thin and sweet, and the icy peaks of Popo and Ixta [*sic*] floated in a blue and smogless sky.”⁷⁰ Air pollution, as Aeronaves’s marketing communications material and Johnson’s account both confirmed, conditioned more restrictive, and therefore less enjoyable atmospheric encounters for tourists.

Unlike Aeronaves, Mexico’s Department of Tourism refrained from making similarly suggestive references to the offensiveness of the capital’s air pollution. Although the department stopped short of praising Mexico City’s contaminated atmosphere, as had a writer for the *New York Times* when he contended in 1969 that the capital’s “much-berated smog makes a real esthetic contribution...serving as a filter for the emerging sun and producing a magic glow on the downtown streets,” government-sanctioned advertising campaigns had clearly turned to prioritizing the urban-industrial aesthetic as a way

⁷⁰ “Smog Blurs Scenery in Mexico City,” *The Hartford Courant*, March 31, 1960, 9B; William Weber Johnson, “Has Anything Happened Here Since Pancho Villa,” *Los Angeles Times*, April 28, 1968, B29. Looking back on his four-year assignment in Mexico City during the 1940s, a reporter for *The Washington Post* echoed Johnson when he remarked that “...it was still possible to glimpse the snowy peaks of the two volcanoes...glistening in the sun” at the time. “Today [in 1971],” he observed, “Mexico City is grittily swathed in a permanent dirty cloud of air pollution and it is difficult to see down the street, let alone to the clean rims of the mountains to the east and south...” See Edward P. Morgan, “Mexico City: A Metropolis Dying by its Own Hand,” *The Washington Post*, January 9, 1971, A14.

of avoiding the negative implications associated with the city's pollution, which had become so dense that it "sometimes [kept] aircraft grounded until 10 a.m."⁷¹ In one ad from 1961, the department vaguely yet familiarly championed Mexico City's "natural beauties [and] its ideal climate," but instead of making reference to its mountainous skyline or incorporating any of the city's other unique "scenic charms" into the design aspects of the ad, as had become the standard practice, the tourism department prominently and proudly displayed its manufactured landscape (**Figure 3.6**).⁷²

HORSE POWER

Mexico's Industrial and Commercial Expansion Program is in Full Swing

THE rational exploitation of its natural resources, the dynamic rhythm of its production and the policy of friendly understanding towards all Countries ensure a brilliant future to the country's commercial activities. Mexico is known as the "Land of Friendship", since the visitor is welcomed with traditional courtesy by all Mexicans. To the visitor's enjoyment of Mexico's natural beauties, its ideal climate, its scene of pre-Hispanic and Colonial architecture, its gay fiestas full of warm color, rich folklore and an atmosphere of cordiality. The Mexican Government has recommended that every visitor be treated as an "armado", considering that Tourism is more than a business - it's a way of achieving better understanding among peoples. That's why in Mexico, each visitor is a new friend.

MEXICO
At the Bond of Friendship!

MEXICAN GOVERNMENT TOURISM DEPARTMENT - PASO DE LA REFORMA 35, MEXICO CITY

Consult your Travel Agent!

OF OUR OFFICES AT:

CHICAGO, ILL. 111	NEW YORK, N.Y. 100
DALLAS, TEXAS 75201	PHILADELPHIA, PA. 19106
DENVER, COLO. 80202	PITTSBURGH, PA. 15222
HONOLULU, HI. 96813	RICHMOND, VA. 23219
LOS ANGELES, CALIF. 90015	SAN FRANCISCO, CALIF. 94104
MILWAUKEE, WIS. 53203	ST. LOUIS, MO. 63102
MINNEAPOLIS, MINN. 55402	WASHINGTON, D.C. 20540
PORTLAND, ORE. 97208	WASH. METRO, D.C. 20004
SAN ANTONIO, TEX. 78205	WHEAT RIDGE, COLO. 80031
SAN DIEGO, CALIF. 92101	

NAME _____

ADDRESS _____

CITY _____

STATE _____

ZIP _____

By completing this form, you agree to receive information from the Mexican Government Tourism Department.

Figure 3.6: Manufactured Skyscape: Tourist Attraction? Mexican Government Tourism Department, "Horse Power: Mexico's Industrial and Commercial Expansion Program is in Full Swing," Advertisement appearing in the *New York Times*, January 11, 1961, 59. (ProQuest Historical Newspapers Database)

⁷¹ James H. Webb Jr., "Reaping Rewards on Foot in Mexico," *New York Times*, November 2, 1969, 16C; Kevin M. Kelleghan, "Mexico City Battles Urban Problems," *Dallas Morning News*, December 21, 1969.

⁷² The Mexican Government Tourist Department and Mexican Tourist Association, "It's a Good Neighbor Policy to Visit Mexico," Advertisement appearing in the *Dallas Morning News*, May 16, 1943, 9.

Imagery of industrial infrastructure and smoke clouds, two widely-recognized markers of modernity by the mid-twentieth-century in Mexico, course along the horizon line, representing “[t]he rational exploitation of [Mexico City’s] natural resources [and] the dynamic rhythm of its production...” Such processes, the ad insinuated, were responsible for not only Mexico’s “brilliant future” economically, but a novel touristic experience as well. Smog comprised a built-in feature within this experience, as in megacities elsewhere, rather than a defect.

Neither delicate admissions of the disruptive impact of air pollution nor persuasive normalizations of it were as common in pollution-savvy travel marketing as broad declarations of Mexico City’s long-lived tenure as an environmentally salubrious place. Advertisements grounded in such techniques utilized hyperbolic illustrative descriptors to remind tourists of Mexico City’s time-honored, highly regarded traits and restorative qualities. For example, one bulletin pridefully claimed that Mexico itself was the “land that invented sunshine,” a meaning-laden distinction that not even smog, already considered a chronic condition by the 1960s, could subvert.⁷³ As a result, marketers heavily honed in on temporally ambiguous environmental features like the pyramids, mountains, and “perfect climate” to support the idea that, in Mexico City, the old and the new coalesced seemingly smoothly together and, by extension, that, amid the incursion presented by dirty air, tourists would still have access to the city’s main attractions.⁷⁴ Such messages come across in a mid-1950s travel poster issued by the Department of Tourism titled “Mexico: The Great Metropolis.” In it, mountains coexist with skyscrapers, stars shine as brightly as do the street lights, and natural and manmade scenery appear equally attractive (**Figure 3.7**).

⁷³ Aeronaves de México, S.A., “How do you like your sunshine?” Advertisement appearing in the *New York Times*, March 28, 1965, XX11.

⁷⁴ The Mexican Government Tourist Bureau, “Wonderful Mexico has Everything...” Advertisement appearing in the *Los Angeles Times*, October 16, 1955, E8.

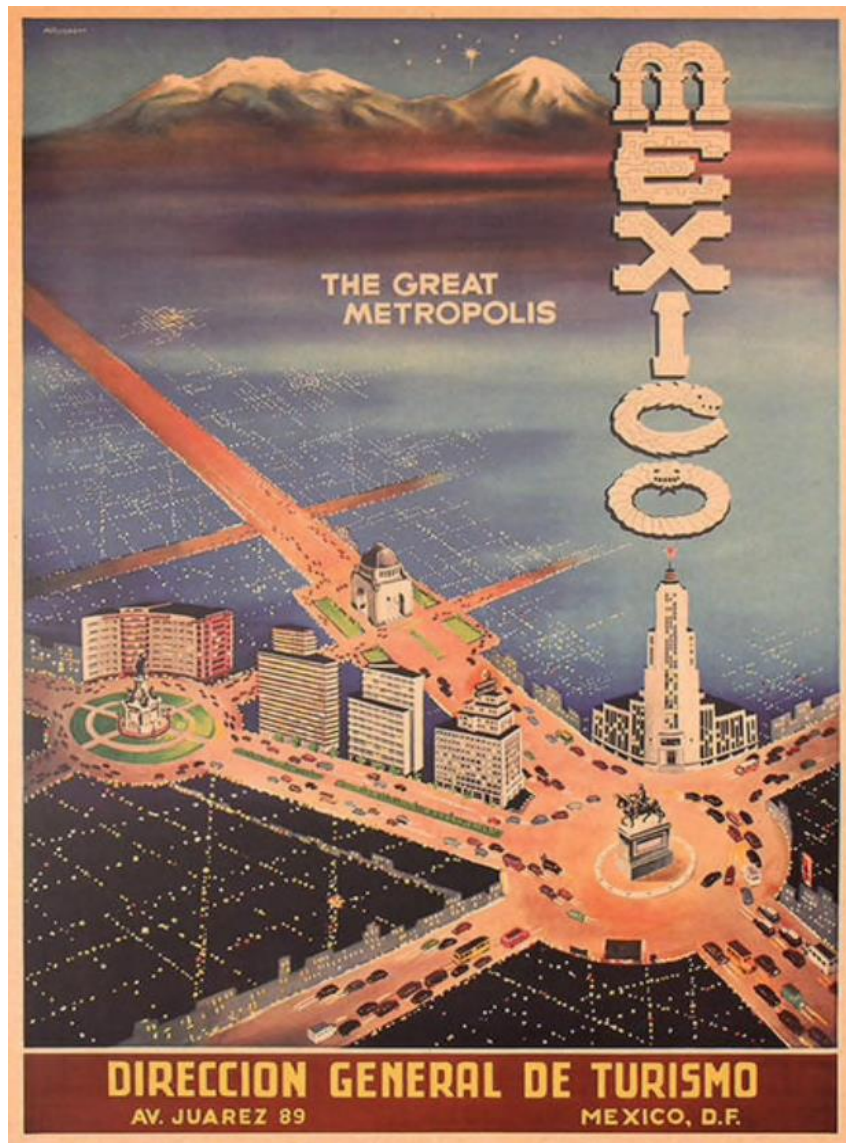


Figure 3.7: Mexico City Travel Poster: Timelessness on Display. Poster by A. Regaert for the Dirección General de Turismo, Mexico, *Mexico: The Great Metropolis*, n.d. [ca. 1950s], replica, personal collection.

A misty, blue ether—evoking the spectral pre-Hispanic wetlands—connects Popocatepetl and Iztaccíhuatl, piercing through a dark celestial sky, to the bustling capital, where automobiles dot the main thoroughways and smaller side streets. Mexico City comes off as timeless in this representation, exhibiting growth yet enduring nevertheless. Mountain iconography, which was often accompanied formulaically by both modern and traditional symbols, such as the high-rise building and the Aztec relic, respectively, was

ubiquitous in this and other forms of midcentury promotional travel literature. Mountains, as portrayed in these ads, were material representations of the unchanging appeal of the city.⁷⁵

Non-terrestrial components also played a role in selling an environmentally benign narrative as well. A 1961 Aeronaves advert, for instance, leveraged Mexico City's consistently mild climate to the same effect as the tourism poster above, arguing that "[t]oday, the temperature in Mexico City is probably in the mid-seventies. How clean, how cool, how refreshing the sun-washed air that drifts down from the surrounding snow-crested mountains," the publication read. "Just another reason why every minute of your vacation adventure in Mexico City is pure joy," reasoned Aeronaves.⁷⁶ The airline's travel ad was reminiscent of a comparably worded government endorsement, released six years earlier, of the "wonderfully healthy [temperature] in the high, clear air of the central plateau."⁷⁷ Monopolizing the ad space, a large thermometer effectively takes the temperature of the climate and displays an ideal 70-degree reading so as to confirm what had become an ingrained maxim: agreeable weather—an "eternal spring"—abounds in Mexico City. Such announcements, styled as mere affirmations of accepted truths, played up and on long-admired components of Mexico City's natural and cultural landscape in order to minimize the discontinuities introduced by air pollution and subsequently reclaim a particular vision of the city.

Tourism marketing broached new ground in light of the intrusive dirty air that had settled over the valley by the 1960s and transformed the tourist experience by obstructing visual access to enchanting

⁷⁵ Advertisements need not have been artistic masterpieces to uphold the angle of environmental wellness as described above. For instance, in a crudely drawn 1955 government-authored advertisement, a simple jagged line represents mountaintops while symbols representing an office building or skyscraper and a pre-Hispanic statue occupy the foreground. Together, the three icons portray Mexico City's successful balancing act of its old and new components. See The Mexican Government Tourist Bureau, "Wonderful Mexico has Everything!" In a 1955 Aeronaves advertisement, a glistening sun radiates over two lone peaks, presumably Popo and Izta as they are covered in white snow, see Aeronaves de México, S.A., "Fly from Winter," Advertisement appearing in the *Los Angeles Times*, December 11, 1955, E8. New York-based Colvin Travel Agency followed the same formula: an Aztec column and a rectangular building point towards the snow-topped peaks in the background. A lone cloud floats in the ostensibly clear sky, see Colvin Travel Agency, "For your Spring Holiday, there's nothing quite like Mexico," Advertisement appearing in the *New York Times*, March 6, 1955, X27.

⁷⁶ Aeronaves de México, S.A., "Come with me to Cool Mexico," Advertisement appearing in the *Boston Globe*, July 9, 1961, A26.

⁷⁷ The Mexican Government Tourist Bureau, "Taking our summer temperature...in climate, too..." Advertisement appearing in the *New York Times*, June 12, 1955, XX46.

panoramic views. Hotels, airlines, and the government's tourism department concocted strategic responses to ambient air pollution, ranging from refined validations of its existence; to rationalizations of smog as a justifiable trade-off for the city's modern look and feel; to invocations of the capital's longstanding status as a city rich in natural wonders, a reputation unaffected by the presence of smog. While these sources were, at heart, reactions to a quickly developing environmental problem, one amplified further by American journalism, travel advertisements performed the important function of generating twentieth-century discourse on anthropogenic air pollution in Mexico. But these tactics were not sustainable for all in the end.

Smog reportedly drove one of Mexico City's "strongest [tourism] boosters" to leave the capital for La Paz in Baja California Sur, where the entrepreneur claimed he had found "inner peace" owing to the "mildness of the climate, the tranquility of the sea, [and] the freshness of the air..."⁷⁸ As the mid-twentieth century gave way to the late, and as urban pollution grew more intense despite the government passing two pieces of clean-air legislation by the early 1980s, marketing could hardly be counted on to keep Mexico City tourism alive. Referencing worsening atmospheric conditions and their impact on the industry, one tourism service provider argued in 1986 that "Mexico is easy to sell, but selling a clean Mexico would be much easier."⁷⁹ Furthermore, extremely unsympathetic "discrediting campaigns," or critical media coverage, largely US-produced, of the political mishandling of Mexico City's spiraling pollution crisis, compelled American tourists to cancel vacation plans. In a statement redolent of that first made by the anonymous hotel manager twenty years prior, in 1986 the president of a local tourism association summarized the effect of adulterated air on the production of place: "Pollution," he propounded, "creates a bad image in the mind of the visitor, who, without a doubt, will share [their opinion] in their home country, which will thus negatively affect us..."⁸⁰

⁷⁸ Harry A. Arnold, "For Developers With a Bankroll," *Oakland Tribune*, June 1, 1970, F9.

⁷⁹ "Urgen normas contra la contaminación y evitar campañas de desprestigio: prestadores de servicio," *El Universal*, January 31, 1986, clipping in L0.20.34, Lucha Contra la Contaminación, Contaminación del Aire, 1970–1986, AE, BMLT.

⁸⁰ "Urgen normas contra la contaminación."

Science and Sense of Place in the Time of Air Pollution: Mexico City in International Forums

In our country, we have already had to endure the sinister misfortune of regions heavily contaminated with toxic substances owing to air, soil, and water pollution, and in our Capital City, we have lost some of our privileges: the pristine blue of the sky of *Anáhuac* and our volcanoes, which are long almost alien to us, hidden from society because of our technological excretions.

Dr. Gustavo Viniegra Osorio, Remarks made at the First World Congress on Air Pollution,
Buenos Aires, Argentina, November 1965⁸¹

So confessed Dr. Gustavo Viniegra Osorio, then Mexico's Director of the Department of Industrial Hygiene, the government agency newly charged with the task of air pollution research, upon taking the floor at the historic First World Congress on Air Pollution organized by the Argentine Association Against Air Pollution.⁸² University-trained scientists like Viniegra were both creators and arbiters of air pollution knowledge in Mexico City during the mid-twentieth century, when development economics and politics converged to convert the nation's capital into a pollution-producing hot spot. But as the above vignette makes evident, they were also storytellers, not entirely unlike the tourism marketers and journalists previously explored by this chapter. In Viniegra's presentation, for example, an increasingly relatable and seemingly unscientific historical narrative by the mid-1960s—one of anthropogenic environmental change played out in the sky—rather than an overly technical display of specialized knowledge, transported participants to a city profoundly transformed by air pollution. Nostalgic references, tender in tone, to a time of natural fecundity, one overwhelmingly characterized by translucent, blue skies that unlocked access to its revered volcanic landscape, gave way to a polemic against the excesses of a society in search of technological modernity. In lieu of a detailed breakdown of

⁸¹ Gustavo Viniegra Osorio, "Contaminación Atmosférica de la Ciudad de México," in *Actas: Primer Congreso Mundial sobre Contaminación del Aire*, vol. II (Buenos Aires, Argentina: Asociación Argentina Contra la Contaminación del Aire, November 1965), 502. Anáhuac is Nahuatl for "Land on the Edge of Water," or "Land Near the Water," and is a reference to Tenochtitlán or Mexico City, though a broader usage of the term to signify the entire Basin of Mexico is also common.

⁸² The Departamento de Higiene Industrial, created upon the passing of the Ley Federal de Trabajo in 1931, operated under the umbrella of the Ministry of Health to address occupational safety and the health of workers; its activities and regulatory aim concentrated highly on the industrial sector by the mid-twentieth century and included factory inspections, educational campaigns, and research. For more on the founding and organization of this entity, see the bulletin put out by the Department of Industrial Hygiene in "Dirección de Higiene Industrial," *Salud Pública de México* 6, no. 6 (November–December 1964): 1249–1260.

recent air pollution studies or anti-pollution campaigns, both of which were practically non-existent for Mexico City at the time but which nevertheless constituted two of the most salient themes among conference presenters, what the scientist imparted on to his colleagues was a contemporary image of Mexico's capital, lost amid an all-encompassing atmospheric haze, and a message about the deeper, cultural value of air to the essence and human experience of the city. "Clean air is a patrimonial right," Viniegra asserted, invoking the nationalistic overtones of the Mexican Miracle. The "restoration of our clean sky," is humanity's "debt to nature," he concluded, speaking to Mexicans and non-Mexicans alike.⁸³

Viniegra was less concerned with dwelling on the particularities of particulates in part because of the nascent state of air pollution research in Mexico City. During the early stages of "exploratory" pollution monitoring in the late 1950s in Mexico, systematic studies of atmospheric contaminants rarely received sufficient financial backing from the government, nor were the results of experiments translated into policy or disclosed to the general public.⁸⁴ Even in the mid-1960s, Viniegra admitted that "[a]ll studies [were] limited in quantity and quality..."⁸⁵ From the 1950s through the 1960s, as a result of the lack of government investment in air pollution research, including funding for purchasing air monitoring equipment and training and maintaining staff, a select few Mexican scientists became active participants in global symposia on air pollution and atmospheric science. Notable early forums included the International Clean Air Congress, organized by the International Union of Air Pollution and Prevention; the World Congresses on Air Pollution held by the Argentinian Association Against Air Pollution; and the Annual Meetings of the Air Pollution Control Association (APCA), originally a US-based professional

⁸³ Viniegra, "Contaminación Atmosférica," 506.

⁸⁴ Humberto Bravo Álvarez and Ricardo Torres-Jardón, "Air Pollution Levels and Trends in the Mexico City Metropolitan Area," in *Urban Air Pollution and Forests: Resources at Risk in the Mexico City Air Basin*, ed. Mark E. Fenn, L.I. de Bauer, and Tomás Hernández-Tejeda (New York: Springer-Verlag, 2002), 124. There is some evidence that English-language books on air pollution were available for purchase for the Mexican consumer starting in the early 1950s, as revealed by the account of tourists Dr. and Mrs. Joseph Vogt of Pittsburgh, Pennsylvania. During their winter 1953 visit to Mexico City, the couple "found a touch of home in the Mexican metropolis" in the form of *Air Pollution*, at that point a recently released English-language study, which was "prominently displayed in the window" of the English Book Shop. Evidence of Mexican-authored or Spanish-language books or studies on the subject for this time was not mentioned. See "Book Bargain!" *Air Repair* 2, no. 3 (February 1953): 118.

⁸⁵ Although he did add that the Mexican government "is interested in applying all studies and means for the bettering and understanding of air pollution in Mexico City and its improvement, and wants to take advantage of all the national and international resources available." See Viniegra, "Contaminación Atmosférica," 501.

organization established in 1906 whose membership was initially limited to smoke inspectors countrywide, but had developed into a multidisciplinary academic society with a global reach in the 1950s.⁸⁶

At these conferences, Mexican scientists delivered research results; expressed shared concerns; related and critically reflected on Mexico's progress (or lack thereof) in pollution abatement; and, most importantly, articulated in various ways the air's power in place making and place meaning. The remainder of the chapter, then, follows Mexican experts as they traveled across the US, Latin America, Europe, and back to Mexico in search of solutions to atmospheric pollution during the 1960s. In carrying out this itinerary, whose purpose it is to extricate embedded atmospheric discourses from the sometimes-unapproachable scientific data, this segment functions as a corollary to the preceding section. Strategically unifying these independent histories in this manner—vis-à-vis the organizational unit of the chapter—serves to accentuate not only how two different groups detected an at-times remarkably evasive and ephemeral phenomenon, but also how the air-centric knowledges they generated in the process became place-making practices, further reinforcing the notion that air, even in its polluted form, influenced the way people conceived of and experienced the city.

In May of 1960, at the fifty-third meeting of the APCA in Cincinnati, Ohio, Humberto Bravo Álvarez, one of the leading chemists at UNAM's Applied Sciences Institute and member of the Instituto Mexicano de Ingenieros Químicos (Mexican Institute of Chemical Engineers, MIChE), a professional association established in 1959 dedicated to the study and practical application of chemical engineering, relayed the outcome of a pioneering late-1950s investigation⁸⁷ of the various pollutants of Mexico City's

⁸⁶ This association would become the US Environmental Protection Agency in 1970.

⁸⁷ The paper which Bravo presented at the APCA meeting summarized research conducted in 1958 and 1959, and built off of a preliminary report of these findings, previously presented in 1958 at the XII Annual Meeting of the Mexican Industrial Hygiene Society in Puebla, Mexico, which was published in 1959, see Humberto Bravo Álvarez and Gustavo Viniegra Osorio, "Polución atmosférica en la Ciudad de México. Informe preliminar," *La Prensa Médica Mexicana* 24 (February 1959): 73–80. The other study referenced as part of the International Geophysical Year looked at carbon dioxide emissions in Mexico City as measured by a network of seven stations placed throughout the city. The article, a summary of research conducted from August 1957 to June 1958, concludes that "CO₂ is only one of many substances liberated to the air as a result of the activities of men and industries...[T]he variations of CO₂ concentration and distribution can be used as an indication of the approximate degree of air contamination in an industrial air." See Armando Báez Pedrajo, "La medición de la concentración del bióxido de carbono del aire y el estudio de su difusión, como un medio para evaluar la contaminación atmosférica," *Revista Mexicana de Ingeniería*

air basin.⁸⁸ This report, one of two to come out of Mexico's participation in the global collaborative Earth sciences research effort known as the 1957–1958 International Geophysical Year, chronicled a portion of a more comprehensive, two-year air monitoring experiment, the first of its kind for Mexico City. In 1958 and 1959, scientists had placed sampling stations around the Federal District, in Tacuba and Ciudad Universitaria, sites that represent the industrial zone to the north and the southwestern residential area, respectively, to track and catalogue the behavior of atmospheric particulates. Bravo, Viniegra, and Armando Báez Pedrajo, chair of UNAM's Chemistry Department at the time, fed 1056 cubic meters of the capital's air, a volume equivalent to approximately half the capacity of an average-sized hot air balloon or 38,000 basketballs-worth of air, through machines equipped with fiberglass filters to collect micrometers of suspended matter, including smoke and dust particles and pollutants in gaseous form.⁸⁹ Through a continuous system of heating and cooling, an extraction device isolated the offending particles—aromatic hydrocarbons, a class of organic compounds and known carcinogen—out of the air. These chemical compounds, byproducts of the incomplete combustion of material used primarily for residential, automotive, and industrial fuel, accounted for 52 percent of the sample, more than double the amount recorded for Los Angeles, Cincinnati, and Philadelphia according to a diagram within the

Química 4, no. 22 (February 1959): 22–26. On the role of chemical engineering in air pollution control, see Marcus Sittenfield, “Chemical Engineering Aspects of Air Pollution Control,” in *Journal of the Air Pollution Control Association* 8, no. 1 (May 1958): 68–71. As it was conceived in the late 1950s, chemical engineering is the process of “design[ing] equipment to remove...substances” from the atmosphere. See also American Institute of Chemical Engineers, “What do Chemical Engineers Do? Chemical Engineers are Saving the Environment,” American Institute of Chemical Engineers, last modified January 11, 2017, <https://www.aiche.org/community/students/career-resources-k-12-students-parents/what-do-chemical-engineers-do/saving-environment>.

⁸⁸ As the name implies, an air basin refers to the mass of air that “resides in terrain pockets surrounded by elevated topography.” For an elaboration, see Marwan Katurji and Shiyuan Zhong, “The Influence of Topography and Ambient Stability on the Characteristics of Cold-Air Pools: A Numerical Investigation,” *Journal of Applied Meteorology and Climatology* 51, no. 10 (October 2012): 1740. Put another way, an air basin is topography's effect on the air. Ground-level anthropogenic emissions, prevailing wind patterns, flora, the presence of water bodies, and population density all affect the behavior of air in an air basin. Air basins are also used in a more conceptual sense to demarcate new political-bureaucratic zones for air governance, especially with regard to chronic, place-bound issues such as air pollution. The idea of air reshaping geography is apparent in the case of California, which has incorporated air basins as a unit for environmental policy analysis. According to the California Air Resources Board, “California is divided geographically into [fifteen] air basins for the purpose of managing the air resources of the State on a regional basis.” Air, as portrayed in the air basin map featured on the Air Resource Board's website, both unites and disrupts existing political-administrative boundaries, see California Air Resources Board, “California Air Basin Map,” The California Air Resources Board, last modified March 14, 2014, <https://ww3.arb.ca.gov/ei/maps/2017statemap/abmap.htm>.

⁸⁹ Bravo, “Variation of Different Pollutants,” 447.

report.⁹⁰ A 1966 reprinted version of the original graph in Bravo's paper, used as evidence in a presentation about the link between chronic bronchitis and air pollution at the First International Symposium on Air Pollution Control in Mexico City, summed up the findings rather bluntly with a title that read "The Poor State of DF."⁹¹

Over a six-month experimentation period in 1959, the team, aided by American engineers who analyzed the particle samplings, found that air in one part of the city—the northern quadrant, home to thousands of manufacturing facilities—was markedly more contaminated than in other areas. While air pollution was indeed localized in origin, researchers also reported that the prevailing northwesterly winds scattered particulates throughout the city, although in a diluted form, thereby democratizing the effect by universalizing the presence of particulates in the sky. From this, they determined that atmospheric pollution was a city-wide phenomenon requiring further study and control measures.⁹² In addition to charting the spatial distribution of polluted air, the investigation revealed a connection between seasonality and the severity of contamination. High ambient pollution, the researchers found, corresponded to the dry season (October through May, roughly) and the winter months (with documented spikes in December and February). During the dry period, rains could not moisten the

⁹⁰ The other compound recorded was aliphatic compounds (or alkanes), of which Cinnamyl had the highest concentration at around 60 percent. Aliphatic hydrocarbons are generally less toxic than aromatic compounds, see W. F. von Oettingen, "The Toxicity and Potential Dangers of Aliphatic and Aromatic Hydrocarbons," *Yale Journal of Biology and Medicine* 15, no. 2 (December 1942): 175. Different technologies allowed scientists to study different pollutants. The filtration device in question was a Soxhlet extractor, a three-piece apparatus consisting of a flask to fill with solvent, a thimble which holds the solvent-insoluble sample, and a siphon tube to cycle out solvent vapor. A boiler plate heats the solvent-sample mixture as it continuously courses through the extractor until the particulates separate. See Bravo, "Variation of Different Pollutants," 448, figure 4. Scientists relied on a photoelectric smoke sampler, a tubular, revolving contraption equipped with white filter paper that captures spots and discolorations from airflows, which would then be analyzed optically. For an explanation of this process, see W. C. L. Hemeon, George F. Haines Jr., and Harold M. Ide, "Determination of Haze and Smoke Concentrations by Filter Paper Samplers," *Air Repair* 3, no. 1 (1953): 23.

⁹¹ The strict translation of the title, "Mal está el DF," is "DF is Bad," but the graph itself is a comparison of the *state* of air quality in three cities in the late 1950s, as well as a reference to the respectively poor ranking of Mexico City, see Raúl Cicero, "La contaminación y la bronquitis," in *Compendio de los Trabajos Presentados en el 1er. Simposio Internacional Sobre el Control de la Contaminación del Aire* (Ciudad de México, México: Society of Automotive Engineers, Mexico Division; The American Society of Mechanical Engineers, Mexico Division; Sociedad Mexicana de Neumología y Cirugía de Torax, A.C., April 1966), 10.

⁹² A 1960 review of Mexico City's Environmental Sanitation Program in the then-new journal *Salud Pública de México* also stated that the emissions of "gaseous industrial waste implicate[s] an already serious atmospheric pollution, not just in the industrial zones, but the whole city...in both residential areas and manufacturing enclaves," see Manuel Sirvent Ramos and Fernando Escarza Martínez, "Programa de Saneamiento del Medio," *Salud Pública de México* 2, no. 2 (April–June 1960): 383.

desiccated Texcoco lakebed, which allowed, as one article described, “columns of dust [to] swirl up...adding to the smog that makes eyes water, poisons the lungs, and obscures the two sentinel volcanoes.”⁹³ The crew confirmed that this phenomenon produced three times the normal level of contamination. In the winter, another meteorological condition—temperature inversions—prevented pollution from dispersing into the upper layer of the atmosphere, forcing increased exposure.

Technology and the scientists who wielded it had thus diagnosed Mexico City’s vast atmosphere as irritant-laden, something that tourists of the time also speculated about in recollections of their travels, though their reflections were anecdotal, experience-based, and grounded more in corporeal rather than cerebral knowledge. Moreover, incipient pollution research recast pleasurable climatic features, like the valley’s cool mountain breezes, long ago coined a natural air conditioner, as the architects of particulate dispersion. Wind, in the scientific view, was not a therapeutic force; rather, it “carried products [particulate matter]” and deposited them around the city, as Bravo and Viniegra put it in a 1966 presentation on sulfur dioxides to the International Clean Air Congress.⁹⁴ In scientific discourse, then, air was used to demarcate pollution-producing spaces within the city—the industrial neighborhoods to the north and the informally settled communities located on the city’s south-eastern geographic periphery⁹⁵—and reshape understandings of climatic patterns, particularly with regard to the ostensibly

⁹³ John O’Neill, “Mexico City is Seeking to Restore Old Beauty, *The Washington Post*, April 3, 1966, A5.

⁹⁴ Humberto Bravo Álvarez and Gustavo Viniegra Osorio, “The Sulphur Dioxide Concentration in Mexico City,” in *Proceedings: International Clean Air Congress*, part I (London: International Union of Air Pollution Prevention Associations, October 1966), 253. Bravo and Viniegra sampled the city’s sulfur dioxide levels from the same sites as in the previous study, through thirty locations within Tacuba and Ciudad Universitaria. They used the lead peroxide “candle,” a “simple and economical instrument [and] one of the first air pollution instruments made, introduced in England...in 1932,” see pg. 252 for an illustration of the measuring instrument. The lead peroxide candle is actually a cylinder or jar, which is wrapped by a cotton gauze soaked with lead peroxide paint. If sulfur dioxide is present in the air, the coating will react and create lead sulfate, a white crystalline solid that is toxic if ingested and an irritant to the surface of the skin. The contraption sits in a perforated “field shelter” box exposed to the atmosphere at an elevation of thirty to forty feet from street level, in this case for a period of thirty days over a year. For more on this method, see Fred W. Thomas and Charles M. Davidson, “Monitoring Sulfur Dioxide with Lead Peroxide Cylinders,” *Journal of the Air Pollution Control Association* 11, no. 1 (January 1961): 24–27; for a historical study of this and other early technologies used for air monitoring, see Stephen Mosley, “‘A Network of Trust’: Measuring and Monitoring Air Pollution in British Cities, 1912–1960,” *Environment and History* 15, no. 3 (August 2009): 273–302; as previously mentioned Natalia Verónica Soto Coloballes has conducted a thorough investigation into the application of such devices in Mexico City, see Soto Coloballes, “La medición de la calidad del aire.”

⁹⁵ The human settlement of areas not officially designated residential locations is a consequence of urban sprawl and inequities in access to affordable essential resources such as land for housing, though, as geographer Jill Wigle demonstrates, the growth of informal settlements is complex and does not always conform to generalized patterns. Illuminating these nuances are case studies situated at the community level, like that of Wigle’s, which examines

refreshing stretch of dry, wintery weather, which travel marketing had labeled the prime vacation season. “Why shiver,” teased one ad, “when you can be pleasantly warm in México? Take a short hop—in a few hours—from winter to spring!” announced a jolly snowman in a January 1964 ad by the Mexican Tourism Department.⁹⁶ Another 1960s travel advertisement conveyed a similar message by poetically proclaiming that “Mexico is a winter suntan.”⁹⁷ The sullied state of the air, as Bravo’s analysis intimated, brought into question seemingly ineradicable cultural representations of the city as an oasis of paradisiacal, nonirritating, everlastingly “spring-like” weather, hitting at the very core of many contemporary tourism marketing campaigns, which treated the dependable climate as the foundation of a positive tourist experience.⁹⁸

Mexican scientists’ presence at large air pollution conventions began with Bravo’s attendance at the APCA conference in 1960, but their continued participation was the result of a broader outreach effort on the part of the APCA. In the words of the association’s president upon the conclusion of the May meeting, the organization desired to “establish closer relations with Mexico” and other Latin American countries undergoing rapid urbanization.⁹⁹ In recognition of this sentiment, the MIChE and its counterpart in the US, the American Institute of Chemical Engineers (AIChE), convened at the Hotel del Prado in Mexico City in the fall of 1960 to discuss “air pollution problems” and cooperative initiatives to

Ampliación San Marcos, an agricultural town with pre-Hispanic roots located on the edges of the Xochimilco wetlands. See Jill Wigle, “Social Relations, Property and ‘Peripheral’ Informal Settlements: The Case of Ampliación San Marcos, Mexico City,” *Urban Studies* 47, no. 2 (February 2010): 411–436.

⁹⁶ In the ad, a couple runs to escape a snowstorm while the dreary city looms behind them. A snowman’s extended arms welcome the duo to the scenery of relaxation: a man golfing, a bullfight taking place, two women recreating on the beach. “When the mercury goes down below freezing point,” the ad continued, “the temperature in Mexico City averages between 75 and 80 degrees. In Acapulco, Veracruz and other tropical resorts, it ranges between 85 and 90 degrees. Pack now and go to México. It is mild and sunny there!” See The Mexican Government Tourism Department, “Why shiver when you can be pleasantly warm in Mexico,” Advertisement appearing in the *Chicago Tribune*, January 19, 1964, H8.

⁹⁷ Reminiscent of the previous advertisement, this promotional piece informed readers that “[t]he temperatures are in the 80s in Mexico now. That’s beach weather...Perfect for sightseeing in cosmopolitan Mexico City,” see The Mexican National Tourist Council and The Mexican Government Tourism Department, “México is a winter suntan,” Advertisement appearing in the *New York Times*, March 20, 1966, 406.

⁹⁸ The Mexican Government Tourism Department, “México: the friendly land,” Advertisement appearing in the *New York Times*, April 4, 1963, 36.

⁹⁹ The 1960 meeting boasted a “record attendance of 623 scientists, researchers, doctors, engineers, and representatives of Federal and local government agencies” as well as international participants. See statement from then-APCA president Harry A. Belyea, “53rd Annual Meeting Sets New Goals for ’61,” *Journal of the Air Pollution Control Association* 10, no. 3 (June 1960): 253. See also “A Survey of Global Air Pollution: Mexico,” *Journal of the Air Pollution Control Association* 16, no. 11 (November 1966): 589.

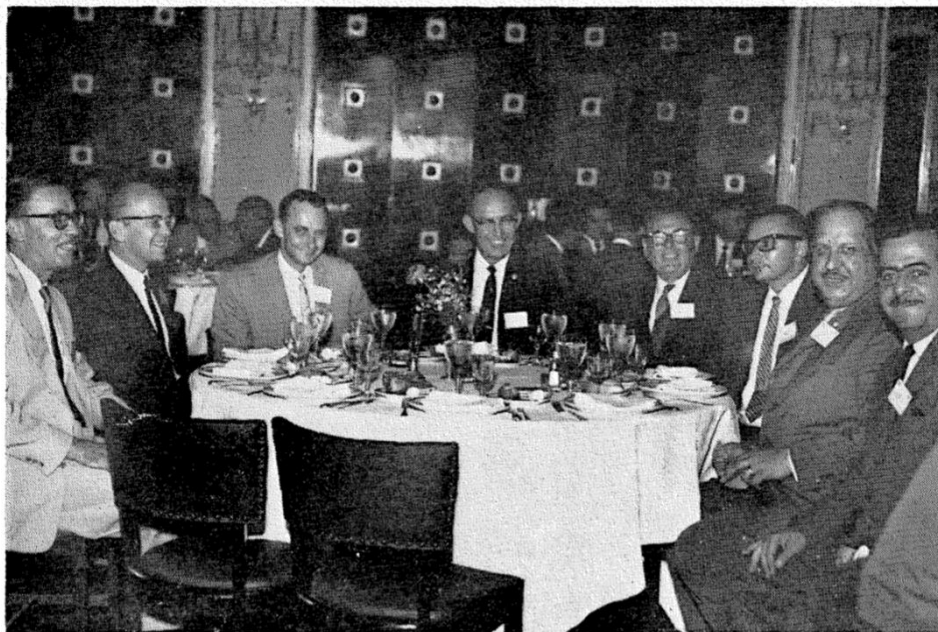
advance the study of ambient pollution in Mexico City, including creating fellowships for Mexican scholars to enroll in renowned environmental engineering and atmospheric science programs offered by US universities (**Figure 3.8**).¹⁰⁰ Although this dinner put on display Mexico's intent to continue pollution research, by 1963 worsening air pollution and sluggish progress in its mitigation prompted international public health agency The Pan American Health Organization (PAHO) to release a report stating that Mexico City was "in need of further investigation and control as quickly as possible." The "greatest necessity," the bulletin urged, "is to train personnel capable of conducting studies in measuring air quality and controlling the contamination of the air." The PAHO's write-up indicated that technicians working out of a single laboratory at the Mexican Ministry of Health's Department of Industrial Hygiene¹⁰¹ were spearheading this project but emphasized that "[t]here is also a necessity to create a consciousness of the seriousness of the problem among government authorities and the public in general."¹⁰²

¹⁰⁰ At the time of its inception in 1957, the MIChE consisted of less than twenty members. The association became formally recognized on July 25, 1959 and still exists today. César O. Baptista Montes, "Historia," Instituto Mexicano de Ingenieros Químicos, accessed January 14, 2020, <http://portal.imiq.com.mx/index.php/que-es-el-imiq/historia>. Many MIChE representatives had become members of the APCA by 1960, most recently Viniegra and Adalberto Tirado. Tirado is featured in the photograph above. See also "Welcome New Members," *Journal of the Air Pollution Control Association* 10, no. 5 (October 1960): 372.

¹⁰¹ The Department of Industrial Hygiene, was comprised of an administrative and operational division, the latter of which was known as the Technical Department. Air pollution research fit into the purview of the Technical Department, as did research on noise pollution, radiation, and the study of toxicology. See the organizational chart in "Dirección de Higiene Industrial," 1250. In 1965, the operations of the central laboratory in question had been suspended because of the "lack of equipment and the inability to retain staff due to low salaries..." Furthermore, the report "expresse[d] with regret that budgetary limitations have caused their [the technicians'] work to lose intensity and quality, becoming routine and deficient..." see the 1965 bulletin in "Dirección de Higiene Industrial," *Salud Pública de México* 7, no. 6 (November–December 1965): 911, 913.

¹⁰² "It is evident," the report concluded, "that the next step [for Mexico] should be a policy response..." Yet Mexico would not pass environmental legislation targeting air pollution until 1971. Ricardo Haddad and John J. Bloomfield, The Pan American Health Organization, "La contaminación atmosférica en America Latina," *Boletín de la Oficina Sanitaria Panamericana* 57, no. 3 (September 1964): 247. Experts first presented this paper at the Inter-Regional Symposium on Criteria for Air Quality and Methods of Measurement in Geneva, Switzerland during August of 1963. This and other 1960s studies by the Pan American Health Bureau represented the expanding reach of the field of public health. Research on urban environmental issues like air pollution supplemented the traditional focus on infectious disease prevention and food access in public health scholarship, see Richard A. Prindle and Antonio Campos Salas, "Importancia del saneamiento ambiental para la salud de la comunidad," *Boletín de la Oficina Sanitaria Panamericana* 53, no. 4 (October 1967): 337–342.

AICHE, MICHE MEMBERS ENJOY TALK DURING UNIT OPERATION LUNCHEON



INTERNATIONAL—Enjoying a Unit Operation luncheon at the Hotel Del Prado in Mexico City are members of the American Institute of Chemical Engineers and the Mexican Institute of Chemical Engineers who are discussing air pollution problems. Pictured from left are: Robert Cabellero, Martin Smith, J. P. Shambaugh, Paul Cater, W. L. Faith, Humberto Bravo, Arnold Arch, and Adalberto Tirado.

Figure 3.8: Discussing Air Matters over Lunch. *Journal of the Air Pollution Control Association* 10, no. 5 (October 1960): 416.

During the 1960s, before the Mexican government passed environmental legislation targeting the air, and before Mexico had officially aligned itself with North American and European air protection initiatives, conferences were the main venues through which scientists gained access to the technical training referenced in the PAHO announcement. Equipment expositions, in particular, allowed attendees to cultivate a specialized understanding of emerging air monitoring technologies (**Figure 3.9**).

Conference participation proved beneficial in other ways as well. According to multiple APCA press releases, a “direct result of liaison...beginning in 1960” between the APCA and Mexican scholars facilitated the formation of Mexico’s own anti-pollution organization, the Association Against the Contamination of Air and Water, in 1965 with Bravo serving as its first president. “Closely patterned after its sister association” in the US, Mexico’s air pollution control association sought to “create in the

Mexican government the urgency to ‘face facts’” and “become objective about the scientific data involved” in assessing and verifying the existence of an air pollution problem in the valley.¹⁰³



Figure 3.9: Learning the Air through the Technology Exposition. “Ninety-nine exhibitors occupied 124 booths—62nd Annual Meeting Summary of Activities,” *Journal of the Air Pollution Control Association* 19, no. 8 (August 1969): 563.

Above all, air pollution forums were spaces for the performance of expertise. In their presentations, Mexican scholars authoritatively defined the scale of the capital’s air pollution problem—whether it was “already serious” or still at an “incipient” stage, for instance—discussed its multi-causal origins, theorized about contaminated air’s effects on the human body, and reported the results of

¹⁰³ The association’s membership was not limited to university scientists, but rather included representatives from the industrial sector and the government, which undoubtedly politicized air pollution research. See “Asociación Mexicana Contra la Contaminación del Agua y del Aire, A.C.,” *Journal of the Air Pollution Control Association* 20, no. 11 (November 1970): 747; Humberto Bravo Álvarez, “Asociación Mexicana Contra la Contaminación del Agua y del Aire—Mexico, Rapport de l’association mexicaine,” in *Proceedings of the Second International Clean Air Congress*, ed. H. M. Englund and W. T. Beery (Washington, DC: The International Union of Air Pollution Prevention Associations; The Air Pollution Control Association, December 1970), 1319.

fieldwork research.¹⁰⁴ Though their papers and talks were primarily data-driven, summative assessments of controlled experiments, scientists' conceptualizations of air pollution were also culturally and historically informed, and oftentimes drew from sensorial modes of knowing the urban atmosphere. Cultural framings of Mexico's air pollution permeated scientific scholarship, resulting in somewhat apologetic takes on the very sources responsible for contaminating the air in the first place, such as motor vehicles, which were deeply inculcated in the Mexican ideal and aesthetic of modernity as Chapter Two has shown. In a 1966 presentation at the annual meeting of the US-Mexico Border Health Association, for example, Gustavo Viniegra noted that "in North American and European cities, where pollution has reached such magnitudes, the conception that the automobile has become man's enemy is now public opinion." However, in Mexico, Viniegra maintained, the passenger car and "other combustion-engine-powered machines, though still very imperfect," were the "pride of our civilization."¹⁰⁵ A more powerful and denunciatory statement came from Dr. Octavio Rivero Serrano, head of the Pulmonology Unit at the General Hospital of Mexico, at the 1966 air pollution convention in Mexico City. "Air is the most maddening dependence of the human being," Rivero declared, explaining that because humans consume ten times more air on a daily basis than food or water, Mexico City's chronic and heavy pollution presented great dangers for the human body. He specified that this was not always the case, as air pollution "...has existed since ancient times." Only with the dawn of the "recent era, when industrialization and the modern methods of transportation have changed the way man lives," he lambasted, "has [air pollution] become a problem."¹⁰⁶ Few were so forthright as Rivero. More often,

¹⁰⁴ Sirvent and Escarza, "Programa de Saneamiento del Medio," 383; Enrique Márquez Mayaudón, "Estado actual de la contaminación del aire en la ciudad de México," *Salud Pública de México* 11, no. 1 (January–February 1969): 104. See also the 1970 roundtable on the ecological problems of the Valley of Mexico. Scientists disagreed on the severity of Mexico City's ambient pollution. Carlos Sáenz de la Calzada, "Contaminación atmosférica," in *Mesas redondas sobre problemas de ecología humana en la cuenca del Valle de México* (México, DF: Instituto Mexicano de Recursos Naturales Renovables A.C., November, 1971), 45–97, Archivo Histórico y Biblioteca Central del Agua [hereafter AHA], Ciudad de México, México.

¹⁰⁵ Gustavo Viniegra, "La contaminación atmosférica," *Salud Pública de México* 8, no. 4 (July–August 1966): 603, based on speech given at the XXIV Reunión de la Asociación Fronteriza Mexicana-Estadounidense de Salubridad held in Saltillo, Coahuila, Mexico from July 6 to 10, 1966.

¹⁰⁶ According to the doctor, humans ingest 1.5 kilograms of food and 2 of water, while they take in 15 kilograms of air per day, see Octavio Rivero Serrano, "La Contaminación del Aire y el Aparato Respiratorio," in *Compendio de los Trabajos Presentados en el 1er. Simposio Internacional Sobre el Control de la Contaminación del Aire* (Ciudad de México,

Mexican scientists touted the objective, and, in their perspective, non-partisan, nature of their research in their calls for antipollution legislation. Yet the ingrained cultural understanding of air pollution as the inevitable price to pay for Mexican modernity—whether industrial or vehicular—dictated the acceptable bounds of their criticism assuring that they would not, in the words of historian David Stradling, “[threaten] the idea of progress itself.”¹⁰⁷

Meanwhile, sensory-based descriptions of air pollution served a practical purpose in scholarly presentations, even as scientists vigorously supported “quantification...[as] the fundamental basis through which to achieve and establish a rational program of [air pollution] control.”¹⁰⁸ On specific occasions, particularly when addressing generalist audiences, as Gustavo Viniegra did in a keynote address on air pollution in the aforementioned 1966 conference, scholars made pollution conceptually legible to non-specialists by appealing to their senses. Air pollution, he explained in an introductory lecture, manifested in various ways, but the first sign of the presence of contaminants in the air was “a reduction in visibility.”¹⁰⁹ The body, Viniegra concluded, was an effective barometer of air quality, a notion that midcentury tourists had demonstrated in their criticisms of Mexico City’s opaque sky, which were, in essence, reactions to their inability to visually perceive the valley’s scenery. Residents, too, had their “own personal detection devices,” remarked a journalist for the *New York Times*: “On days of high concentration [of air pollution], the eyes smart and the lungs feel a sharp irritation. A black grime covers the windshield of an automobile left outdoors overnight. Grit filters into homes and offices through window cracks and housewives have to clean and dust surfaces each day.”¹¹⁰ Viniegra’s successor at the

México: Society of Automotive Engineers, Mexico Division; The American Society of Mechanical Engineers, Mexico Division; Sociedad Mexicana de Neumología y Cirugía de Torax, A.C., April 1966), 2.

¹⁰⁷ David Stradling, *Smokestacks and Progressives: Environmentalists, Engineers, and Air Quality in America, 1881–1951* (Baltimore: Johns Hopkins University Press, 1999), 3. Stradling points out that reform-minded, antismoke progressives were caught in a bind: how to criticize smoky skies without dismantling the very systems from which they had profited. He thus argues that “[p]rogressive reformers, including antismoke activists, rarely offered a comprehensive critique of the industrial order that lay at the root of the diverse problems they hoped to solve,” see pg. 2.

¹⁰⁸ Dirección de Higiene Industrial, “Medición de la contaminación atmosférica,” *Salud Pública de México* 11, no. 5 (September–October 1969): 669.

¹⁰⁹ Second in Viniegra’s taxonomical classification of air pollution’s manifestations was “...damages to property; the third, by damages occasioned to flora and fauna...and the last, by [damages] to human health,” see Viniegra, “La contaminación atmosférica,” 604.

¹¹⁰ Juan de Onis, “Mexico City Plans Study of Pollution,” *New York Times*, June 17, 1970.

Department of Industrial Hygiene, Enrique Márquez Mayaudón, likewise recognized in a later publication that “[t]he evidence of air pollution most often begins with the identification of visible smoke-emitting sources, be they industries or vehicles, which contribute to reducing visibility,” but pointed to “[o]ther types of discomforts,” including “undesirable odors, unpleasant tastes, local irritation...as well as a generally identifiable dirtiness.”¹¹¹ Emphasis on sensory perception in scientific literature of the 1960s suggested that everyday atmospheric entanglements, in addition to apparatuses and technical know-how, had a place in the detection of air pollution.

In April 1966, during the First International Symposium on Air Pollution Control in Mexico City, Dr. Raúl Cicero, a pulmonologist at Mexico City’s Hospital Colonia de los Ferrocarriles Nacionales spoke of a “disorder” plaguing the city. This disorder, he confided, “has determined that ‘clean air’ has become a curiosity of the laboratory and that the ‘most transparent region’ has ceased to exist.”¹¹² Cicero’s sophisticated understanding of Mexico City’s atmospheric transformation was an amalgamation of cultural, historical, and scientific ways of knowing the air. Air pollution did more than simply camouflage Mexico City’s scenery—a most wretched outcome, to be sure. Even more problematically, it endangered and subsequently erased a deeply rooted sense of place. As monitoring stations proliferated across the city, classifying some areas as more hazardous than others, and as scientists set about the globe making Mexico City’s atmospheric deterioration known to international audiences vis-à-vis science as well as the senses, it became evident that Mexico City had developed a pollution problem, though the government had yet to officially recognize it as such by the end of the decade.¹¹³

¹¹¹ Enrique Márquez Mayaudón, “La contaminación del aire,” *Salud Pública de México* 12, no. 1 (January–February 1970): 46.

¹¹² Cicero, “La Contaminación Aerea y la Bronquitis Crónica,” 3.

¹¹³ A 1970 survey of twenty-one *United Press International* correspondents indicated that nine countries, including Mexico, “have done little or nothing about pollution.” In Mexico City, “[e]verything from blasting a passage through the mountains...to yoga breathing exercises has been suggested to combat Mexico’s smog problem. The government, however, has done little so far.” See Emil Sveilis, “Pollution Controls Scarce,” *United Press International*, August 23, 1970.

Reading Meaning into the Modern Sky: Synthesizing Marketing and Science as Atmospheric Dialogue

In the mornings, principally during the winter months, the inhabitants of Mexico City and the surrounding areas frequently observe that there is a considerable reduction in visibility and that there exists a dark-colored cloud covering the Valley, an indication that our air is dirty. There is air pollution...If Mexico no longer takes pleasure in being the 'region of the most transparent air,' we must consider that it is due to the push of a sometimes improvised and poorly planned, although vigorous, technology that has soiled it, but which is the means of the struggle of a country that strives tenaciously to increase its development to achieve higher standards of living for its inhabitants.

Dr. Enrique Márquez Mayaudón, "Aire sucio. Contaminación," 1970¹¹⁴

Aire comprimido, pardo y turbio; líneas suaves, veladas; amanecer en la gran ciudad después de una noche sin viento. Flotan siluetas esponjosas; contornos borrosos se endurecen y se enfrían al acercarse: fachadas, copas de árboles...Hasta sobre las casas yace el vaho sucio de la gran ciudad, pardo y maligno y venenoso se ve en el plano horizontal, esclareciéndose hacia arriba. Su límite superior, preciso como cortado; un asiento grueso en la amplia concha del valle. Tan sólo sobresalen las puntas de las torres de una iglesia colonial, los esqueletos de las dos antenas del Televisión. En el cenit ya se transparenta un tenue azul, en alguna parte el *smog* café aparece amarillo, con un núcleo algo más claro: el sol todavía impotente...Un fino olor dulce me envuelve. La primera panadería abierta con sus innumerables hileras de brillante pan caliente.

[Compressed air, brown and cloudy; soft, veiled lines; sunrise in the big city after a windless night. Fluffy silhouettes float; fuzzy contours harden and settle as you get closer: façades, tree tops...Even on the houses lies the dirty mist of the big city, brown and malignant and poisonous, it can be seen on the horizontal plane, becoming clearer upon ascension. Its upper limit, precise as if cut; a thick trim in the wide shell of the valley. Only the tips of the towers of a colonial church stand out, the skeletons of the two antennas of the *Televisión*. At the zenith a faint blue transparency appears, somewhere in the middle of the brown smog, there appears a yellow, with a somewhat clearer core: the sun still powerless...A fine sweet smell envelops me. The first open bakery with its countless rows of shiny *pan caliente*.]

Rudolf Peyer, "Amanecer en la Gran Ciudad," 1964¹¹⁵

Two very different groups helped uncover the existence of a pollution problem in Mexico City during the last decade of the country's economic miracle years. Though they were not in dialogue with one another and addressed the deterioration of Mexico City's air quality in distinctive ways, those

¹¹⁴ Enrique Márquez Mayaudón, "Aire sucio. Contaminación," *Salud Pública de México* 12, no. 2 (March–April 1970): 133.

¹¹⁵ Rudolf Peyer, "Amanecer en la Gran Ciudad," in *Artes de México*, ed. Margarita de Orellana 7, no. 58/59 (1964): 21.

working in tourism and as scientists—in the university; private laboratory; or, as was less often the case, in government positions—substantiated informal observations of atmospheric decline made by tourists and the media throughout the 1960s and early 1970s. Their contributions, which took on forms such as research articles appearing in academic journals with an international readership, presentations given as part of global air pollution symposia, and travel advertisements that creatively addressed the city’s unsightly smog, antedated formal government intervention. In the process, tourism boosters, tourists, and scientists instilled new meaning into the modern sky, drawing on a tradition popularized by actors previously explored by this dissertation. As established in Chapter One, air and the sky were essential elements in the experience of the nineteenth-century metropolis. Diarists, merchants, artists, and naturalists carefully took note of Mexico City’s meteorological phenomena and the qualities of its atmosphere. In doing so, they “endowed” the landscape with value.¹¹⁶ These immaterial aspects of the environment, as colonial and nineteenth-century records illustrate, were vital in the forging of Mexico City’s reputation as a healthful, enjoyable place, and as a haven for travelers. This line of reasoning had relevance to the twentieth-century city as well—indeed, this dissertation maintains that air’s centrality to the character of the city (both in how this character was conceived and perceived) transcends chronologies, thus constituting an important thread in the environmental history of Mexico City more broadly.

But as the quality of the air and the visual appearance of the sky changed in response to the overdevelopment of urban space, so too did people’s perceptions of the capital. In Chapter Two, for example, smoke-saturated air and emission clouds wafting from the chimneys of factories like Ford de México’s—the skyscape of modernity—created a new cultural landscape, one that represented the advancement of Mexico’s economic miracle. During the 1940s and 1950s sky imagery, as seen in state propaganda and advertising campaigns put out by private companies, positively reinforced and supported the material, on-the-ground processes responsible for the capital’s industrial expansion, urban development, and general economic growth. Smoke clouds and chimneys became symbols of the new era

¹¹⁶ Tuan, *Space and Place*, 6.

of economic nationalism while cherished elements of Mexico City's cultural heritage such as its mountains and clear air received less attention. Skyscapes barren of factory buildings and their vaporious emissions—the quintessential artifacts of industrial modernity—were unproductive skyscapes. As the current chapter has argued, the latter half of Mexico's "miracle" once again spawned new modes of sensing and making sense of the Mexico City sky.

Throughout the 1960s, the tourism industry turned to marketing to maneuver the amorphous but economically damaging environmental phenomenon of ambient pollution, which left less-than-stellar impressions on foreign visitors, who, like the nineteenth-century travelers of the first chapter, opportunely documented their atmospheric encounters. While more research is needed to understand how Mexicans themselves received and responded to such outsider-authored atmospheric reclassifications of Mexico City, it is evident air played a role in how tourism boosters advertised the city. While some representatives of the tourism industry acknowledged that air pollution had conditioned a more restrictive tourist experience, for the most part, hotel establishments, airline companies and the Mexican Government Tourism Department itself minimized the negative publicity that air pollution brought to the nation's capital by directing travelers' attention to the long-appreciated components of Mexico City's natural environment, including its mountains and tepid climate, seemingly unaffected by the particulates that had invaded the air. At the same time, atmospheric science professionals frequented air pollution symposia in order to situate Mexico in the global conversation about anthropogenic atmospheric change. Measuring technologies uncovered not only the specific chemical compounds coursing across the sky, but a new urban geography marked by problematic pollution-producing zones in the north and east, where industry and desiccated land released conspicuous and inconspicuous material into the atmosphere. Air pollution conferences served as essential forums for Mexican scientists to display their results and collaborate with other academics outside of Mexico who were part of more developed air pollution research programs and networks. In their presentations and essays, Mexican scientists conveyed a sophisticated understanding of the air pollution problem that had descended upon the capital, one that was sensitive to the cultural importance of air in the history and environment of

Mexico City. Both parties examined in this chapter were not ideologically monolithic masses—individual scientists and tourism promoters went about dealing with and presenting the atmospheric transformation of the valley in a variety of ways. Taken together, however, the air-centric discourses manufactured by these actors reveals the continued importance of air, even though it was no longer as transparent or salubrious, to conceptions and experiences of the city.

By the 1970s, air pollution developed into the stuff of everyday conversation. As the poet Rudolf Peyer illustrates, dirty air confronted residents most aggressively in the early morning hours, after a windless night, but could be perceived throughout the day. For some, it served as a discomforting reminder of the famous Humboldtian moniker which their city could no longer claim. For others, like Dr. Mayaudón, it reinforced a dichotomous worldview that pit modernity against nature and the environmental wellbeing of the capital. Atmospheric encounters like the one that Peyer described in the extract above also spoke to how quotidian yet prominent air pollution had become, and the bodily ways in which it was experienced. Going into the late twentieth century, corporeal knowledge of air pollution was the basis for the politicization of atmospheric contamination, both in official policy and environmental activism at the individual and community level, particularly as the health effects of chronic air pollution crystallized. With the intensification of air pollution in the mid-1970s and 1980s, which manifested as air emergencies lasting multiple days at a time and the death of flora and fauna, the body became the unit through which concerns about air pollution—reaching, at that point, a new, disastrous scale—were framed and expressed.

Chapter Four

Living, Breathing, Politicizing Polluted Air: Air Politics and Embodied Environmental Consciousness in the Late Twentieth Century

While politics has permeated this story at multiple junctures, politicians themselves have, for the most part, received considerably less attention thus far. It might seem peculiar, in a historical study of the atmosphere, one that is particularly concerned with the development of the phenomenon of air pollution, that those entrusted with the power to devise and enact policy solutions to established environmental problems have not yet appeared in a significant sense. In part, the analytical nonattendance to lawmakers and other officials in this dissertation mirrors the way in which the historical reality unfolded from a chronological perspective. In comparison to the US and other, typically European, countries with discernible pollution problems in the twentieth century, in Mexico, government actors—a category that consists of various presidents from the 1970s onward, heads of federal and municipal administrative bodies, and public officials such as Mexico City's mayors—were slow to acknowledge the necessity of atmospheric governance and thus of curbing the damaging effects of polluted air, which compromised the body, the economy, the city's image abroad, and its ecological future more broadly. Political recognitions of the need to control atmospheric contamination haphazardly materialized in the form of environmental legislation by the early 1970s in the context of the Mexican Miracle's breakdown and a growing global environmental consciousness, but not until the late 1980s, as pollution emergencies abounded, did laws become clearer, more purposeful, and better enforced. Therefore, the decision to relegate such voices to the final chapter of this dissertation serves two purposes: first, it facilitates the temporal progression of the historical narrative; second, and more importantly, it places a spotlight on the conspicuous silence of Mexico's political leaders in the face of what had quickly morphed into an environmental disaster.

Despite the initial silence from within the political realm, or perhaps more accurately because of it, members of the Mexican intelligentsia¹ propelled air-centric issues to the public sphere during the last third of the twentieth century, a unique historical moment marked by shifting political ideologies and economic instability, but also by democratic openings.² These apertures allowed civil society to express, quite unprecedentedly, discontent with the government's mishandling of environmental issues, especially in the aftermath of the historic 1985 earthquake, whose effects were exacerbated by ineffective post-crisis management.³ An abundance of ecologically-sensitive cultural productions—cartoons, poems, artwork,

¹ While not a monolithic group, the Mexican intelligentsia have historically possessed and exercised a significant cultural and political influence in Mexican politics. The prominence of intellectuals in Mexican history and society has links to Porfirio Díaz's dictatorship, during which time a coterie of intellectuals known as the *científicos* (The Scientists), operating under the tenets of positivism, promoted the application of scientific knowledge to the economic and social modernization of the country. For more on the complicated role of the *científicos* during the Porfiriato, see Natalia Priego, *Positivism, Science, and "The Scientists" in Porfirian Mexico: A Reappraisal* (Liverpool: Liverpool University Press, 2017). In his study of the role of intellectuals in twentieth-century Mexican society, political scientist Yvon Grenier writes that "Mexico is the only country in the Americas where intellectuals have had a significant and sustained role in the political arena during the twentieth century." The reason behind this, he maintains, "...comes not from an intellectual tradition but from a certain pattern of state-building" centered on the state's "appetite for ideology, ...institutionalized patterns of interest representation which turn all sectorial elites (including the cultural elite) into interlocking and independent pyramidal groups, and...the common social background of these elite groups." See Yvon Grenier, "Octavio Paz and the Changing Role of Intellectuals in Mexico," *Discourse* 23, no. 2 (Spring 2001): 124. Other scholars have also shown that Mexican intellectuals' "...projects and freedom of expression were sometimes supported and sometimes restricted by the State" during the mid-twentieth century. See Deborah Cohn, "The Mexican Intelligentsia, 1950–1968: Cosmopolitanism, National Identity, and the State," *Mexican Studies/Estudios Mexicanos* 21, no. 1 (Winter 2005): 141.

² As Louise Walker explains, the processes leading to the economic crisis that has plagued much of Mexico's recent past (here encompassing the 1970s, 1980s, and 1990s) are rooted in "a combination of [economic] slowdown and the perception of crisis" as well as changing political ideologies in response to this perceived and, later, real economic decline. There was no hard stop to the economic miracle in the late 1960s; rather, Mexico entered a phase of plateaued economic growth accompanied by a growing societal disillusionment, stemming particularly from the middle class, that then "galvanized into action" politicians and industrialists who "experimented" by restructuring the economy and reducing the level of state involvement thereby trending towards a more neoliberal approach. By the 1980s, on the heels of the global oil collapse and the 1985 earthquake, "crisis became the backdrop of everyday life." See Walker, *Waking from the Dream*, 12–16; 223, fn. 66, 68.

³ Geographer and political ecologist Margaret Wilder has used the concept of aperture to examine water politics in Mexico. Borrowing from one of Wilder's applications of the term, this chapter defines apertures as "political windows of opportunity for understanding policy change" in the sphere of environmental politics that took form in the late twentieth century. In this, apertures allow for "the emergence of new mobilizations of civil society..." See Margaret Wilder, "Water Governance in Mexico: Political and Economic Apertures and a Shifting State-Citizen Relationship," *Ecology and Society* 15, no. 2 (June 2010): 2, 4. Political scientist Paul Lawrence Haber's study of urban social movements in Mexico from the 1980s onward links these political openings to President Luis Echeverría's populist policies in the 1970s; the effect of the 1980s economic crisis and the state's implementation of strict austerity measures, which disproportionately affected the poor and middle class; and the government's response to the 1985 earthquake. See Paul Lawrence Haber, *Power from Experience: Urban Popular Movements in Late Twentieth-Century Mexico* (University Park, PA: The Pennsylvania State University Press, 2006). On contemporaneous cultural responses to the 1985 earthquake, see Olson and Gawronski, "Tapping Collective Memory." For a study of post-disaster popular mobilization in one of the hardest-hit areas in Mexico City, the Tlatelolco housing complex, see Walker, *Waking from the Dream*, ch. 6.

opinion pieces, and novels—addressing themes such as environmental decay, catastrophe, and precarious or unlivable futures simultaneously reflected and provoked societal anxieties about the quality of the air breathed daily by millions of *capitalinos* (residents of the capital). Creators of these late-twentieth-century atmospheric dialogues were inspired by both mundane and dramatic scenarios of environmental risk experienced in the *esmogópolis*, as Mexico City had become known in the popular imagination. In their works, the city’s polluted atmosphere appears at once as a defeated, defiled nature, corrupted by decades of capitalist modernization, *and* as an agential, oftentimes malevolent, force that occasioned everyday bodily microinjuries, such as eye and nose irritations or respiratory disorders, as well as more spectacular, distressing, and visible harms, like the death of flora and fauna. Juxtaposed with official discourse, such commentaries provided a different, notably more grave assessment of air pollution in the capital. Air was not simply “contaminated,” the preferred and restrained language regularly found in legal or political documents; instead, air was “toxic,” “venomous,” “noxious,” or “deadly”—spoiled to the point of insalubriousness. It could suffocate, cause illness, and ultimately kill. These descriptors conveyed the notion that pollution had surpassed an unstated but implicit societal threshold level, spiraling, by the twentieth century’s denouement, into a widespread ecological threat from which no resident could be spared.

Sensory descriptions were essential to how artists, journalists, and activists perceived and articulated these latent dangers. Full-bodied or corporeally-grounded renditions of air pollution, which were also emotionally-charged, had utilitarian value, as they allowed authors to shine a light on the collective, if not “habituated,” forms of environmental suffering produced by day-to-day life in the capital.⁴ Unlike the previously explored travelogues of the nineteenth century or mid-twentieth-century

⁴ In their ethnography of pollution in an Argentine community, Javier Auyero and Débora Alejandra Swistun importantly point out that, while the senses are indispensable barometers for pollution, corporeal knowledge exists as part of a reality that is “socially and politically produced,” one where companies, “doctors and government officials are as much a part of the everyday life...as lead and noxious odors are.” The lived experience of environmental toxicity is further complicated, they show, because people become “habituated” to the effects of contamination over time, which in turn impacts the perception of risk. See Javier Auyero and Débora Alejandra Swistun, *Flammable: Environmental Suffering in an Argentine Shantytown* (Oxford, UK: Oxford University Press, 2009), 5–6, 9.

tourism advertisements, both of which were directed at select or foreign audiences, the sources analyzed in this chapter were distinctly “popular cultural documents” meant for popular consumption and representative of society’s attitudes at a specific yet crucial point in Mexican history.⁵ Air and the sky thus continued to occupy space in the minds of Mexico City’s citizenry going into the closing decades of the twentieth century. But the atmospheric narratives generated by pollution-concerned city dwellers no longer resembled the earlier praiseful literature of the city’s transparent air and unspoiled views. Rather, ecologically-attuned popular cultural works constituted, as literary scholar Ailise Bulfin’s survey of science fiction catastrophe narratives puts it, a “kind of socio-cultural unconscious responding to the cultural trauma of the not-fully-admitted but unavoidable knowledge of impending...ecological deterioration.”⁶ Moreover, they “effectively communicat[ed] the implications of environmental decay...and the need to address [it], reframing the perspective from a detached and scientifically-articulated problem to one of a human condition—immediate and personal.”⁷

Late-twentieth-century popular critiques of air pollution developed out of an emerging societal environmental awareness, one which the country’s anti-pollution laws, criticized by scholars on the basis of their poor enforcement and, by extension, lackluster outcomes in pollution reduction, helped engender.⁸ How official directives and laws forged environmentally-concerned individuals and groups from the 1970s through the 1990s rested on the important definitional work that they performed. Not

⁵ Popular cultural documents are those that “arise” out of a society’s psyche as well as from historical concerns exclusive to a specific time period. In my use of this term, I take inspiration from the 2011 work, *It Came From the 1950s!*, a study of mid-twentieth-century American cultural trepidations and traumas laid bare by films, advertisements, television programs, and popular fiction and intellectual works. As the authors explicate, popular culture narratives could both threaten the hegemonic political order and “operate conspiratorially to reinforce the power of vested interests.” Mexican popular cultural documents of the late 1900s similarly exposed and critiqued, like never before, a unique set of societal anxieties connected to the Mexico City environment. See Darryl Jones, Elizabeth McCarthy, and Bernice M. Murphy, eds., *It Came From the 1950s! Popular Culture, Popular Anxieties* (London, UK: Palgrave MacMillan, 2011), 6, 14.

⁶ Bulfin, “Popular culture and the ‘new human condition’,” 142. Scholars have argued that science fiction—“a speculative genre that ‘dreams’ alternative and often futuristic worlds into existence”—is an increasingly applicable lens through which to “explore perceived risks and anxieties regarding large-scale environmental change.”

Furthermore, the popularization of science fiction in the new millennium is indicative of its “relevance in a time of ecological uncertainty and change.” For more on science fiction-as-worldview, see Alexa Weik von Mossner, “Afraid of the Dark and the Light: Visceralizing Ecocide in *The Road to Hell*,” *Ecozone* 3, no. 2 (2012): 42–56.

⁷ Bulfin, “Popular culture and the ‘new human condition’,” 141.

⁸ Mumme, “Clearing the Air,” 9; Aguilar et al., “The Basin of Mexico,” n.p.

only did Mexican legislation early on classify pollution according to the various forms in which it appeared, from water, soil, air, waste, radiation, pesticide, and even noise pollution, but it also created new environmental subjectivities. Writing off Mexico's anti-pollution policies on account of the bureaucratic ways in which they were imposed or focusing on politicians' disdain for them fails to capture this consideration.⁹ As political scientist Arun Agrawal has elucidated in *Environmentality*, a study of environmental politics in the forest communities of the northern Indian Kumaon region, technologies of government, here including laws, regulatory agencies, the data such entities churn out (statistics and measurements, for instance), and other mechanisms that aid in the act of governing, produced "environmentally oriented subject position[alities]," or "people who have come to think and act in new ways in relation to the environment."¹⁰ In Mexico City, activists, artists, journalists, students, and

⁹ To be sure, the administrative problems that many scholars have described should not be overlooked, as poor enforcement only worsened pollution in the long term. Furthermore, political denialism in the form of strong anti-pollution abatement sentiments—many of which emanated from the very politicians who passed these laws—deservedly receives the attention that extant scholarship has paid to it. Mexican environmental policy indeed "...lack[ed] capacity and commitment to implementation." But the legal discourse itself merits further examination, particularly as it pertains to the ways in which laws constructed environmental subjectivities, an outcome that is not easily apparent and requires some teasing out. Quoted material from Mumme, Bathe, and Assetto, "Political Development," 26.

¹⁰ Arun Agrawal, *Environmentality: Technologies of Government and the Making of Subjects* (Durham: Duke University Press, 2005), 3, 8, xiv. Agrawal's environmentality is a continuation of the Foucauldian concept of governmentality, one of three forms of power articulated by Foucault in his late 1970s lecture series, *Security, Territory, and Population*. See Michel Foucault, *Security, Territory, Population: Lectures at the Collège de France, 1977–1978*, ed. Michel Senellart, trans. Graham Burchell (New York: Palgrave Macmillan, 2007). For Foucault, unlike sovereign or disciplinary power, governmentality encompasses the ways in which people are either taught or allow themselves to be governed. Foucault writes that the "question of government," broadly conceived, "did not refer only to political structures or to the management of states; rather, it designated the way in which the *conduct of individuals or of groups might be directed*: the government of children, of souls, of communities, of families, of the sick. It did not only cover the legitimately constituted forms of political or economic subjection but also modes of action, more or less considered or calculated, which were destined to act upon the possibilities of action of other people. To govern, in this sense, is to structure the possible field of action of others." See Michel Foucault, "The Subject and Power," *Critical Inquiry* 8, no. 4 (Summer 1982): 790. [Emphasis added by author] Agrawal uses governmentality as a framework to investigate how relations between humans and the environment are governed in the context of decentralized forest conservation in India. The technologies of government that he examines include the "procedures to control, manage, and exploit landscapes [that the state] deemed valuable" through "surveys; demarcat[ion] of different categories of forests; ...working plans for planting, management, and rotational harvesting of trees; limited grazing by domestic animals; restricted collection of fodder and firewood; and [the] introduction of fire protection." See pg. 4. In Mexican environmental history scholarship, Emily Wakild in *Revolutionary Parks*, Christopher Boyer in *Political Landscapes*, and Andrew Mathews in *Instituting Nature* have shown how rural people and communities (villagers and those residing on lands that would become national parks) became environmental subjects in response to changing technologies of government (such as the state's impetus to create national parks in the case of Wakild, assume control of formerly community-managed forests in Boyer's work, and implement more scientifically-oriented forest management practices in Mathews's study), which transformed "woodlands [into] ecological sites of encounter and social contestation for most of the twentieth century." Boyer, *Political Landscapes*, 4; Emily Wakild, *Revolutionary Parks: Conservation, Social Justice, and Mexico's National Parks, 1910–1940* (Tucson: University of Arizona Press, 2011);

common residents became pollution-conscious environmental subjects due to changing understandings of the environment, reflected in the creation of anti-contamination laws, that labeled the atmosphere as something worthy of citizens' attention. Much like the park ranger from Utah who was featured in the previous chapter, Mexico City residents learned to read the atmosphere, attuning themselves through bodily knowledge to the numerous signs of pollution. They also inserted their voices into the wider project to control the capital's bad air.¹¹ For its part, the state instigated residents' transformations into environmental subjects by incorporating into legislation and environmental programs a discourse that promoted conscientization, or awareness-raising, and community participation in clearing the air, one which grew more pronounced as neoliberal reforms led to the decentralization of environmental governance and management.¹² Still, as Agrawal has argued, because environmentality inevitably results in self-regulation, this form of power ultimately benefitted the interests of the state.¹³ In Mexico, self-policing manifested in neighborly surveillance efforts and the creation of neighborhood associations that gave input on initiatives like the No Driving Day program, which was enforced in 1989 as a contingency measure after a prolonged period of intense air pollution. But this chapter shows that environmental subjects also pushed back against and actively contested what they perceived as empty state rhetoric, evidenced by the lack of government enforcement of the law and the quotidian and corporeal experience of worsening air pollution during the 1980s and early 1990s.

Andrew S. Mathews, *Instituting Nature: Authority, Expertise, and Power in Mexican Forests* (Cambridge, MA: The MIT Press, 2011).

¹¹ In part, my argument about the way that laws worked to create environmental subjectivities is influenced by what I encountered in the archive. Collections dedicated to campaigns against pollution, each one beginning in 1970 or 1971, years that more or less correspond to the enactment of the first anti-contamination law, widely featured everyday people partaking in or demonstrating their environmental awareness in very public ways, via protests or participation science fairs, among many others. The presentation of archival records in this way inspired a deeper reflection on the flow of power in the classification of environmental subjects.

¹² Because of the austerity measures of the 1980s, which hit the federal environmental ministry particularly hard, state and municipal entities gained more control over the management of air pollution. See Williams, *Market Reforms*, 6, 140.

¹³ In her analysis of environmentality as applied to waste and discard studies, geographer Shaunna Barnhart writes that individuals who have "internaliz[ed] new ways of thinking that leads to new identities and actions...become the type of 'subject' that furthers government aims...without necessarily being aware of their complicity in that objective—the individual becomes an instrument *of* government by self-regulating their behavior to further the objectives of the governing body." See Shaunna Barnhart, "Environmentality," *Discard Studies*, July 27, 2016, accessed May 29, 2019, <https://discardstudies.com/2016/07/27/environmentality/>. [Emphasis in original]

Two principal themes thus guide this chapter, intertwined into an overarching argument that maintains that air continued to give meaning to the lived experience of the urban environment in Mexico's capital, even as it became hazardous to consume and a sensorial, inescapable nuisance. The first theme pertains to the environmentality of air, or how air came under the governance of laws and citizens alike; the second concerns the societal response to the mismanagement of air pollution as seen through the analytical optic of popular culture. Pairing together these key threads while interfacing contrasting categories of sources allows for the parsing out of the inherent nuances, contradictions, and complexities embedded in the late-twentieth-century drive to gain control over the capital's rampant atmospheric contamination. Lax enforcement of regulations indeed slowed, and even reversed, the momentum and achievements of the general effort to improve the air quality in the capital, as the disastrous air pollution events of the late 1980s and early 1990s corroborate. Nevertheless, rising popular awareness for environmental issues like air pollution, which was mobilized in the cultural works that concerned citizens produced, indicated that air figured prominently on the public agenda. Environmental subjects produced texts and images—from the outwardly trivial cartoons appearing in newspapers to the more elaborate manifestos written by revered cultural thinkers—that performed an embodied environmental consciousness and communicated an intense societal desire for clean air and translucent skies.

The Environmentality of Air: Atmospheric Governance, Environmental Subjects, and Discourses of the Future

Mexico is a country of beautiful laws but without enforcement.

Homero Aridjis, environmental activist, Grupo de los Cien, 1987¹⁴

On Sunday, November 15, 1981, at promptly nine o'clock in the morning, thousands of people, both young and old, took to their bikes to traverse the eighteen-mile Avenida de los Insurgentes, the longest and one of the most crucial thoroughfares in Mexico City, to Ciudad Universitaria, home of the

¹⁴ Quote in Vincent Schodolski and Phil Greer, "City on the brink," *Chicago Tribune*, December 13, 1987, H38.

National University. The route was not particularly strenuous and cyclists were further encouraged to pedal at a calm pace so that stragglers or latecomers could exit or enter the caravan without too much trouble. The mass of people and bikes, which eventually reached an impressive 5,000 riders, was also undisturbed by cars, trucks, or buses and their various noises and emissions, as local police units had blocked off the boulevard to outside traffic. The sky was ostensibly clear and the weather salubrious. It was an altogether “marvelous spectacle” from the beginning to its final moments.¹⁵

Participants started arriving at the university campus at around 10:45 a.m., tired and sweaty, finally dismounting to stretch and to consume complementary refreshments or a more congratulatory ice cream cone. This was not a race or a competition, yet newspaper accounts recalled that many sported an undeniable look of satisfaction on their face upon completion. They had just taken part in the First Ride for Environmental Improvement, the closing ceremony of the inaugural Environmental Improvement Week, a campaign organized by the Ministry of Health and Welfare and the Sub-Ministry of Environmental Improvement.¹⁶ Indeed, there were no winners or losers, but the feeling of success permeated the air nevertheless, for everyone had triumphed by achieving one, central goal: having helped better the environment in the city, if only for a day. That Sunday morning, under highly curated conditions, the platoon of pedallers performed a state-sanctioned narrative of environmental consciousness, one that held that ordinary residents were the fundamental solution to the air pollution crises that regularly besieged their metropolitan space during the waning decades of the twentieth century.

¹⁵ Gonzalo Juárez García, “Participaron Cerca de Cinco mil Capitalinos en la Caravana en Bicicleta Pro Mejoramiento Ambiental,” *El Nacional*, November 16, 1981, clipping in L6.04.01, Lucha Contra la Contaminación, Contaminación del Aire, 1970–1986, AE, BMLT.

¹⁶ Programs like Mexico’s Environmental Improvement Week had roots in the 1972 UN Conference on the Human Environment in Stockholm, Sweden. The week-long event in Mexico was reminiscent of World Environment Day, one of the initiatives resulting from the 1972 Declaration on the Human Environment by the UN Environmental Programme, which designated one day of the year, June 5, as “World Environment Day,” a day in which governments and organizations “reaffirm their concern for the preservation and enhancement of the environment, with a view to deepening environmental awareness and pursuing the determination expressed at the Conference.” For the declaration, see United Nations, General Assembly Official Records, 27th Sess., 2112th plen. mtg., UN Doc A/PV.2112 (December 15, 1972), available from [https://undocs.org/en/A/RES/2994\(XXVII\)](https://undocs.org/en/A/RES/2994(XXVII)).

Popular demonstrations of environmental awareness manifested in various forms during the last two decades of the twentieth century, from participation in state-organized or community-directed campaigns like the above, to confrontational mass protests, to the more freeform individual assumption of an environmental justice stance in artwork, literature, or performance, examined in greater detail in the following section. Since the early 1970s, when atmospheric governance began in Mexico, official and legal documents reveal the government's recognition of a need for reparative environmental policy in the political agenda. Accordingly, political discourse of the time espoused a nationwide commitment to "govern the prevention and control of contamination and the improvement, conservation, and restoration of the environment," as well as to initiate and lead consciousness-raising programs that would teach Mexicans about the environmental issues facing the country.¹⁷

"Pollution," as famously framed by the Undersecretary of the Environment in 1981, "is a social problem whose solution is the homework and responsibility of all."¹⁸ Such a statement was indeed not novel; in fact, it was reminiscent of the 1971 call, as outlined in the first anti-pollution law passed by Mexico, for a "visionary and responsible civism" in the improvement of environmental matters.¹⁹ Presenting air pollution as a public health problem, rather than one that was environmental, the latter of which might have come across as a privileged concern—one which only developed nations had the ability to entertain—was crucial to the creation of environmental subjectivities because, in the words of one scholar of Mexico, "no one could oppose the proposition of bettering the health of Mexicans."²⁰ A social pedagogy component focused on attaining an ecologically sustainable future and an emphasis on the

¹⁷ Excerpt from "Ley Federal para Prevenir y Controlar la Contaminación Ambiental," *Diario Oficial de la Federación*, July 6, 1971.

¹⁸ Laura Quintero, "La Subsecretaría del Ambiente no tiene facultades ejecutivas; sólo recomienda," *El Día*, September 13, 1980, clipping in L6.04.01, Lucha Contra la Contaminación, Contaminación del Aire, 1970–1986, AE, BMLT.

¹⁹ "Previsión de Daños," *El Excelsior*, January 5, 1971, clipping in L6.04.01, Contaminación Ambiental, Campaña, México, Lucha Contra la Contaminación, 1971–1991, AE, BMLT.

²⁰ Rainer Godau Schücking, "La protección ambiental en México: sobre la conformación de una política pública," *Estudios Sociológicos* 3, no. 7 (January–April 1985): 58; Simonian, *Defending the Land*, 180–181. As interdisciplinary geographer Anneleen Kenis puts it, "the chosen angle makes a huge difference," see "Science, citizens, and air pollution: Constructing environmental (in)justice," in *Toxic Truths: Environmental Justice and Citizen Science in a Post-Truth Age*, eds. Thom Davies and Alice Mah (Manchester, UK: Manchester University Press, 2020), 282–283.

collective participation of all Mexicans, newly understood as environmental subjects, was thus engrained into environmental policy-making from the start of anti-pollution legislation in 1971.

President Luis Echeverría Álvarez (1970–1976) legislated the country's and Latin America's first anti-pollution law on March 23, 1971, known as the *Ley Federal para Prevenir y Controlar la Contaminación Ambiental* (Federal Law for the Prevention and Control of Environmental Contamination).²¹ According to one 1972 legal assessment, the law, “taken at face value” represented “one of the world's most impressive legal regimes for environmental protection and control for virtually every aspect of the environment crisis.”²² While unprecedented from a Latin American policy standpoint, Mexico's enactment of the anti-contamination law was not completely unexpected considering the highly publicized pollution problem festering in the nation's capital—by the early 1970s, Mexico City's atmosphere captured 400 tons of solids daily, casting a “black panorama for humanity,” according to the author of a revealing report on aerosol emissions in the capital.²³ The law was also unsurprising because of the supportive political climate in Europe and the US for the adoption of sustainable or “eco” development²⁴ policies geared towards conserving rather than exhausting a country's natural resources.²⁵ Existing clean-air laws in the US, Britain, and Canada, passed in the 1950s and 1960s, offered a

²¹ However, the law was not published in the *Diario Oficial* until July 6, 1971. A separate, more specific anti-pollution law regulating smoke and dust emissions arose from this broader legislation, see “Reglamento para la prevención y control de la contaminación atmosférica originada por la emisión de humos y polvos,” *Diario Oficial de la Federación*, September 17, 1971.

²² Juergensmeyer and Blizzard, “Legal Aspects of Environmental Control in Mexico,” 594.

²³ Statistic on particulate dispersion from “Se Duplicará en 20 Años el Bióxido de Carbono en la Atmósfera: Félix Candela,” *El Nacional*, November 4, 1971, clipping in I0.02.34, Contaminación Ambiental, Campaña, México, Lucha Contra la Contaminación, 1970–1986, AE, BMLT.

²⁴ Mexican experts seriously discussed the “viability and potential of ecodevelopment,” which was the theme of the 1972 Stockholm conference. A significant point of concern was “the characteristics of the socio-economic system of third-world countries, which presents hurdles to the implementation of ecodevelopment.” See J. Hurtubia, V. Sánchez, H. Sejenovich, and F. Szekely, Programa de las Naciones Unidas para el medio ambiente, Oficina Regional para América Latina, “Hacia una conceptualización del ecodesarrollo,” Report, 1979, Centro de Ecodesarrollo, A.C., Exp. 124, Dictaminación de Documentos, Archivo General de la Nación [hereafter AGN], Ciudad de México, México.

²⁵ Simonian's analysis of Mexico's 1971 anti-pollution policy gives Echeverría more credit, as he is interpreted as acting on intuition. For example, Simonian states that while the president was “reluctant” to put air quality on the political agenda and “adamantly defended” the continuation of Mexico's industrial economic progress in international forums, he ultimately did so “principally because he feared that the severity of environmental problems in Mexico would result in political and social unrest.” Simonian and others characterize the 1971 law as taking a “palliative approach...[Echeverría] could be seen as taking steps to control pollution without having to disrupt industrial production or without having to require a change in people's lifestyles.” See Simonian, *Defending the Land*, 178–180.

framework for Mexico's own law, and Mexican government officials and scholars even traveled to US cities to learn about current environmental contamination prevention models and abatement programs.²⁶ Dr. Jorge Jiménez Cantú, then-head of Ministry of Health and Welfare, the agency that presided over environmental matters, personally visited France, Italy, Germany, and Britain, with the attitude that "...knowledge and observation of a problem in its global context, its political handling, its educational dynamic, will surely illustrate much," for Mexico's own pollution abatement approach.²⁷ Furthermore, international forums, such as the Latin American Regional Seminar on Problems of the Human Environment and Development, held in Mexico City in September of 1971, and the 1972 UN Stockholm Summit, continued to put pressure on Mexico to prioritize air pollution reduction in political agendas in the 1970s, leading to a standalone law regulating smoke and dust emissions.²⁸

The Law for the Prevention and Control of Environmental Contamination, which amended Section XVI of Article 73 of the Mexican Constitution (relating to public health),²⁹ expressed a nationwide commitment to "govern the prevention and control of contamination and the improvement, conservation, and restoration of the environment," but Mexico City, the "biggest victim of smog," was

²⁶ Upon the recommendation of the Mexican Institute of Industrial Chemists to study air pollution control measures put in place by the US, government officials visited Chicago, Illinois; Boulder, Colorado; Cincinnati, Ohio; Pittsburgh, Pennsylvania; and Washington, DC to learn about their respective approaches and implementations of the Clean Air Act. Canadian and German laws were also a source of inspiration for the Mexican government. See Juergensmeyer and Blizzard, "Legal Aspects of Environmental Control in Mexico," 587 and fn. 17.

²⁷ "Aprovechará México la Experiencia Extranjera en la Lucha Contra la Contaminación Ambiental," *El Nacional*, May 5, 1971, clipping in L0.02.34, Contaminación Ambiental, Campaña, México, Lucha Contra la Contaminación, 1970–1986, AE, BMLT.

²⁸ For smoke and dust, see "Reglamento para la prevención y control de la contaminación atmosférica originada por la emisión de humos y polvos." Two other laws set the precedent for the regulation of water pollution ("Reglamento para el control y prevención de la contaminación de las aguas," *Diario Oficial de la Federación*, March 29, 1973), and ocean pollution caused by toxic waste dumping ("Reglamento para prevenir y controlar la contaminación del mar por vertimiento de desechos y otras materias," *Diario Oficial de la Federación*, January 23, 1979).

²⁹ Section XVI of Article 73 of the Constitution gave the federal government exclusive powers over public health and sanitation. The Reform of 1971 added to the fourth clause of Section XVI of Article 73, allowing the Consejo de Salubridad, or the General Health Council, to bring pollution into their purview. As stated in the constitution: "The measures that the Council has enacted in the campaign against alcoholism and the sale of substances which are poisonous to the individual or which degrade the human species, as well as the measures adopted to prevent and fight against environmental contamination, shall thereafter be examined by the Congress of the Union in the cases under its jurisdiction." This process allowed the General Health Council to enact the March 23 law as a *ley ordinaria*, or an ordinary statute, which "meets the test of constitutionality," but is of a lower level than other classes of law in Mexico's regulatory framework. See Gonzalez Márquez, *Environmental Law in Mexico*, 20; Juergensmeyer and Blizzard, "Legal Aspects of Environmental Control in Mexico," 585; Mumme, Bathe, and Assetto, "Political Development," 12.

the most immediate concern, as air pollution there had grown so dramatic that “clear days [had become] the exception rather than the rule,” and smog was so thick that it interfered with air travel.³⁰ However, the Mexican federal government’s approach at this time was to strike a balance between continued industrial development, which had fueled the nation’s economy since the 1940s, and environmental conservation, a concern that had “elite origins,” or, in other words, that was impressed upon Mexico largely from beyond, by the US and the European Union.³¹

The 1971 law, which consisted of thirty-four articles divided over five chapters pertaining to air, water, and soil contamination, broadly entrusted the federal government, through the Ministry of Health and Welfare, with the authority to define what constituted environmental pollution, devise pollution abatement programs, set emission standards for automobiles and industrial facilities, and enforce regulation measures by levying fines on individuals or forcing factory closures if deemed necessary by the law.³² In this sense, the March 23 Law was closely inspired by the US Clean Air Act of 1963, but Mexico’s decree was unique in two respects: first, unlike in the US law, wherein the federal government created pollution standards and guidelines but relegated enforcement power to the state and even city level, Mexico’s law centralized both decision-making and implementation power within the federal government; second, the law itself was far more comprehensive in scope with regard to the definition of pollution, which included various forms besides atmospheric.³³ “Contaminants,” according to the law, constituted:

any material or substance, or chemical or biological combinations, compounds, or derivatives thereof, such as smoke, dust, gases, ash, bacteria, residues, wastes, and anything else, which upon being incorporated or added to the air, water, or soil may alter or modify their natural

³⁰ “La Lucha Anticontaminación,” *Novedades*, February 27, 1974, clipping in L0.02.34, Contaminación Ambiental, Campaña, México, Lucha Contra la Contaminación, 1970–1986, AE, BMLT; Francis B. Kent, “Mexico City Has Its Smog Troubles, Too,” *Los Angeles Times*, March 7, 1969, 19; Kevin M. Kelleghan, “Mexico City Battles Urban Problems,” *Dallas Morning News*, December 21, 1969.

³¹ Mumme, Bathe, and Assetto, “Political Development,” 26. President Echeverría staunchly defended Mexico’s right to economic development. He often made the point that it was the rich nations that have contributed the most to the deterioration of the environment; hence, those countries needed to make greater investments to repair the damages they have caused and prevent the continued degradation of the environment. Echeverría often referred to pollution as the “tribute to pay” for Mexico’s journey to development. See Horacio Cortina López, “Mobilización General para Preservar el Medio Ambiente,” *El Universal*, February 26, 1974, clipping in L0.02.34, Contaminación Ambiental, Campaña, México, Lucha Contra la Contaminación, 1970–1986, AE, BMLT.

³² For more detail on sanctions, see “Ley Federal,” cap. 5, art. 29–34.

³³ Bachmann, “Will the Circle Be Unbroken,” 654; “Ley Federal,” cap. 1, art. 5; cap. 2, art 12.

characteristics, or that of the environment; as well as any form of energy, such as heat, radiation, and noise, which when acting upon the air, water, or soil, alters their natural state.³⁴

In contrast to this sophisticated and all-encompassing definition of pollution, the law labeled

“contamination” as:

the *presence* in the environment of one or more contaminants, or any combination thereof, that injures or impairs life, health and human wellbeing, flora and fauna, or degrades the quality of the air, water, soil, property, and resources of the Nation in general, or of individuals.³⁵

In this legal description, contamination referred not to the *act* of polluting, a demarcation that would have placed more stress on the producers of pollution—industrialists and vehicle users, for example. Instead, the law’s definition of contamination impartially emphasized the *state* of being contaminated, and a contaminated environment, as explicated by the law, was capable of inflicting injuries on humans and non-humans (even property) alike.³⁶ By detailing the possible risks posed by environmental pollution, the 1971 law implied that Mexican citizens could become victims of these harms. The law thus sought to “afford the private individual a role” in policing pollution.³⁷ Indeed, one of the last articles of the law stated that “[a]nyone has the legal right to denounce before the competent authorities all acts which constitute contamination of the environment within the framework of this Law,” effectively naming everyday residents environmental subjects.³⁸

³⁴ “Ley Federal,” cap. 1, art. 4a. Elsewhere, specific provisions for air pollution further differentiated between natural and artificial sources of “contaminant emissions,” and did specify the individual’s role in pollution creation. Natural sources included “eroded land areas, desiccated lands, [and] volcanic emissions,” while artificial sources were “those products of human technology or endeavor, among which are included: stationary sources such as factories, boilers, laboratories, workshops, thermoelectric plants, refineries, chemical plants and any other analogous to...non-stationary sources such as internal combustion type vehicles, airplanes, locomotives, ships, motorcycles, automobiles,” and “miscellaneous types such as open air garbage and waste incinerators, and others that consume combustibles that produce or are capable of producing pollution,” see cap. 2, art. 11.

³⁵ “Ley Federal,” cap. 5, art. 33. [Emphasis added by author]

³⁶ Interestingly enough, by 1980, the Ministry of Health and Welfare and the IPN (National Polytechnic Institute) changed the definition. Contamination became “the *action* or effect of altering the purity of a thing such as soil, water, and air...” Contamination was also the “process of adding foreign elements into the environment.” See Laura Quintero, “En México deben incorporarse programas ecológicos en el desarrollo: Mayagoitia,” *El Día*, December 9, 1980, clipping in L0.02.34, Contaminación Ambiental, Campaña, México, Lucha Contra la Contaminación, 1970–1986, AE, BMLT. [Emphasis added by author]

³⁷ Juergensmeyer and Blizzard, “Legal Aspects of Environmental Control in Mexico,” 591, 592.

³⁸ “Ley Federal,” cap. 1, art. 4b. One 1974 review of Mexico’s anti-pollution law stated that “[t]he amount of control that is achieved [by the law] will depend, to a large degree, on the part of the public...” See “El medio ambiente: Los problemas de la contaminación ambiental,” 1974, Centro de Ecodesarrollo, A.C., Exp. 828, Dictaminación de Documentos, AGN.

Notably, Mexico's law enumerated a three-pronged plan of attack for environmental contamination issues, which were not limited to the air, as explained above. Through popular education, which aimed to "[orient] especially children and young people of the Nation to a greater awareness of ecological problems"; the cooperation of the public and the industrial sector with the government; and the continued creation of environmental legislation, the law offered a broad-strokes answer to the problem of environmental contamination, widely conceived.³⁹ Public education, one of the ways that the state created environmental subjects, fell under the control of a newly established administrative unit within the Ministry of Health and Welfare, the Subsecretaría de Mejoramiento del Ambiente, or the Sub-Ministry of Environmental Improvement (SMA), created by presidential decree on January 29, 1972.⁴⁰ One of the more exemplary consciousness-raising projects during the Echeverría administration was the April 1971 First Ecological Exhibition, a primary school competition showcasing student research projects on environmental themes.⁴¹ Held at the Casa del Lago, a cultural center tucked away in the Chapultepec forest, the exhibition revealed a growing public interest in Mexico's environmental challenges, pollution ranking high among them. Visitors of the exhibit generally appreciated and identified with the effort. One attendee even remarked that the event, with its focus on air pollution, was "a subject that concerns us [Mexico City residents], because we are drowning a little bit more each day in

³⁹ "Campañas Simultáneas Contra Contaminación Ambiente y del Agua," *Novedades*, July 30, 1971; "Ley Federal," cap. 1, art. 8 stated that the "Federal Executive, through such Agencies and organizations as it may designate [here, the Ministry of Health and Welfare], shall develop an educational and informational program on a national level in regard to environmental contamination..."

⁴⁰ The president's brother, Dr. Eduardo Echeverría Álvarez headed the SMA. For more on the makeup and organization of the SMA and other government agencies over the last third of the twentieth century, see Instituto Nacional de Ecología y Cambio Climático, "1970–1988. De la Subsecretaría de Mejoramiento del Ambiente hasta la Subsecretaría de Ecología," *Crónica del Instituto Nacional de Ecología* (2018): 44–45. The Secretaría de Agricultura y Recursos Hidráulicos, or the Ministry of Agriculture and Hydraulic Resources, was also involved in environmental policy creation and enforcement.

⁴¹ Organized by the Ministry of Health and Welfare and the Mexican Association against Air and Water Pollution (founded in 1965), this event became a revolving exhibit, open to the public on Saturday and Sunday. There is scant information available on the Mexican Association against Air and Water Pollution, with one 1980s study claiming that this organization "...did not have much influence politically or administratively [on pollution]," but the group did prompt discussion on the "technical problems related to air and water pollution." See Iván Restrepo, "El Estado del medio ambiente en México: Una visión de conjunto," 98, Report, 1978, Centro de Ecodesarrollo, A.C., Exp. 239, Dictaminación de Documentos, AGN. This document seems to have been misdated, however, as the chronological scope of the report covers the majority of the 1980s.

the city.”⁴² Indeed, young people figured prominently in the state’s vision for achieving the environmental salvation of the nation. Mexican citizens, according to official rhetoric, were not only fighting for a better world for their children; the future was “in the hands” of the children themselves, depicted by one official as the “fertile soil for the awakening of an [environmental] consciousness.”⁴³ As the 1970s gave way to the 1980s, Mexican youth were increasingly the recipients of environmentally-focused and future-oriented public education campaigns, which portrayed children as necessary to forging a social solidarity in the fight against the “common enemy” of pollution.⁴⁴

By the end of Echeverría’s presidency and the beginning of José López Portillo’s in 1976, the government had embarked on several conscientization campaigns under the banner that civism was the key to “prevent[ing] possible damages to the wellbeing” of Mexican society.⁴⁵ The media often echoed this narrative, arguing that public support was crucial for environmental reform because, as one reporter wrote in 1975, “[t]he government cannot, by itself, win this fight, they need the indispensable collaboration of every citizen.”⁴⁶ Among other things, public-facing campaigns and educational environmental technologies turned citizens into environmental subjects who were responsible for pollution prevention in their own ways. Children, for instance, had a “civic obligation and responsibility to preserve the environment” in the short- and long-term through their active participation in environmental initiatives during the school year.⁴⁷

The Sub-Ministry of Environmental Improvement also aimed to elevate environmental consciousness in adults, when it created the air quality index, the Índice Mexicano de la Calidad del Aire

⁴² “Contra la Contaminación,” *El Universal*, April 25, 1971, clipping in L0.02.34, Contaminación Ambiental, Campaña, México, Lucha Contra la Contaminación, 1970–1986, AE, BMLT.

⁴³ “En los infants está cifrado el futuro de la protección ambiental: Manuel López Portillo,” *El Universal*, November 10, 1981, clipping in L6.04.01, Contaminación Ambiental, Campaña, México, Lucha Contra la Contaminación, 1971–1991, AE, BMLT.

⁴⁴ “Es Urgente Tomar Medidas más Drásticas Contra la Contaminación Ambiental que Ejerce la Basura: Se Destruyen Gradualmente Biósfera, Agua y Aire,” *Novedades*, July 26, 1982, clipping in L6.04.01, Contaminación Ambiental, Campaña, México, Lucha Contra la Contaminación, 1971–1991, AE, BMLT.

⁴⁵ “Previsión de Daños.”

⁴⁶ “Campaña Contra el Smog,” *El Universal*, April 15, 1975, clipping in L6.04.01, Contaminación Ambiental, Campaña, México, Lucha Contra la Contaminación, 1971–1991, AE, BMLT.

⁴⁷ “En el próximo sexenio se concluirán los planes de saneamiento ambiental, señaló Manuel López Portillo,” *Unomásuno*, November 9, 1982, clipping in L6.04.01, Contaminación Ambiental, Campaña, México, Lucha Contra la Contaminación, 1971–1991, AE, BMLT.

(IMEXCA), with the purpose of “informing the public in a precise and timely manner,” of the air quality, thus equipping citizens with the tools to decipher the air.⁴⁸ The state held citizens accountable for their pollution-producing activities, such as “excessive automobility,” or overuse of vehicles, and expected capitalinos to conduct timely automobile maintenance “to reduce the venomous air caused by the thousands of polluting vehicles destroying the health of the citizenry.”⁴⁹ As part of a mid-1970s campaign to reduce vehicular pollution, which caused anywhere from 70 to 80 percent of the city’s pollution according to various reports, the government deployed all-female police patrols, labeled by the press as “pollution maids,” to remove polluting cars from the roads.⁵⁰ Police officers, whose role it was to “guide” rather than coerce motorists to be conscientious of vehicular pollution, tagged pollution-emitting vehicles by seizing drivers’ license plates and affixing a sticker that read “POLLUTANT” to the rear window.⁵¹ The very conspicuous marking served as an official warning that obligated drivers to repair their engine in thirty days’ time before sanctions applied. Because vehicular pollution comprised a major source of

⁴⁸ IMEXCA (by 1982, IMECA, or Índice Metropolitano de la Calidad del Aire), as it was conceived in 1977, was based on the 1974 Pollutant Standards Index (PSI) created by Wayne R. Ott and G. C. Thom, a system that “makes use of ‘segmented linear functions’ which convert measured concentrations of each air pollutant into a normalized number.” See Wayne R. Ott and William F. Hunt, Jr., “A quantitative evaluation of the pollutant standards index,” *Journal of the Air Pollution Control Association*, 26, no. 11 (November 1976): 1050. See also, Cecilia Montero López, “Pronóstico de la Calidad del Aire,” 29–30.

⁴⁹ Coverage of this initiative is spotty but the 1975 campaign was a collaboration between the Mexican police, the Transit Department, and the SMA. According to the General Director of Transit, the program was classified as an “initial action of consciousness-raising and public health campaign, for which the cooperation of the public [was] expected.” The director warned that “only in the case that cooperation is not obtained will sanctions apply.” Members of the police department—all female—took to policing the busiest arteries, Paseo de la Reforma, Viaducto de Tlalpan, Constituyentes, Ignacio Zaragoza, and others, in search of conspicuous vehicular pollution. In addition to drivers surrendering their license plates and their cars being labeled as polluters, drivers had to fix their vehicles at predetermined locations and present written proof to the police within thirty days, at which point, ideally, the police would return to the driver their license plate. Tickets ranged from fifty to 250 pesos. See Arturo Gómez Castro, “Miles de Contaminantes Están Acabando con la Salud de los Ciudadanos,” *El Nacional*, August 3, 1975, clipping in L0.02.34, Contaminación Ambiental, Campaña, México, Lucha Contra la Contaminación, 1970–1986, AE, BMLT; Quintero, “La subsecretaría.” The effort temporarily resurfaced in 1984, but was described as “demagoguery.” See Restrepo, “El Estado del medio ambiente,” 78.

⁵⁰ “Lo esencial contra la contaminación es reducir el índice de automotores,” *El Día*, October 1, 1979, clipping in L0.02.34, Contaminación Ambiental, Campaña, México, Lucha Contra la Contaminación, 1970–1986, AE, BMLT; Gloria González Salazar, “Medio Ambiente, Urbanismo y Planeación,” *El Día*, September 24, 1980, clipping in L0.02.34, Contaminación Ambiental, Campaña, México, Lucha Contra la Contaminación, 1970–1986, AE, BMLT.

⁵¹ “Arroja Buenos Resultados la Campaña,” *El Heraldo de México*, January 29, 1977, clipping in L0.02.34, Contaminación Ambiental, Campaña, México, Lucha Contra la Contaminación, 1970–1986, AE, BMLT. However, this author is under the impression that the date of this article is incorrect (or was misdated during processing), because the article notes that on the “second day, the program has produced good results.” According to the article, 150 vehicles (private cars and cargo trucks) had been investigated, principally because the government had offered free diagnostic tuning.

atmospheric contamination in the valley, one that nearly every vehicle-owning resident generated in their daily use of the automobile, government discourse quite literally painted participation at the individual level as essential to its mitigation. In response to strong measures like the pollution brigades, some citizens countered that placing such emphasis on self-education and “isolated individual action” was out-of-touch and idealistic, proposing that, in the grand scheme of things, what Mexico needed to solve environmental pollution problems was instead “general mobilization.” Yet SMA officials continued to underscore the “necessity of an educational campaign to educate drivers to conserve their vehicles in the best conditions of service, among those including regular engine tunings, periodic oil changes, and avoiding high speeds and overfilling gasoline tanks...”⁵²

In addition to vehicular pollution, the 1971 law also took aim at industrial pollution, and ambitiously set out to catalogue industrial activity and isolate the most flagrant offenders in the valley. Thus, from 1974 to 1978, the Sub-Ministry of Environmental Improvement expanded its reach to include the regulation of industrial emissions, determining through a government study that, of the 72,084 industries throughout the country, a little less than 3,000 plants were responsible for 71 percent of industrial pollution, but that the majority had already installed anti-contamination equipment or were in the process of doing so. The law allotted a six-month grace period for industries to obtain and implement the new technologies. But the conditions were harsher for recently established industries, because new businesses were also required to secure a permit to honor the new regulations. Sanctions for polluting factories not in line with standards ranged from fifty to 10,000 pesos or a temporary shuttering.⁵³ One year into the project, the SMA had assessed 3,000 fines, amounting to a total of 10 million pesos. Overall, however, a lack of funds and trained personnel, combined with the herculean task of policing industry

⁵² Cortina López, “Mobilización General”; “Se Está Procurando que los Automóviles Causen Menos Contaminación Ambiental,” *El Nacional*, February 17, 1974, clipping in L0.02.34, Contaminación Ambiental, Campaña, México, Lucha Contra la Contaminación, 1970–1986, AE, BMLT.

⁵³ “10 Millones: producto de multas para industrias que no evitan la contaminación,” *El Excelsior*, February 14, 1975; clipping in L6.04.01, Contaminación Ambiental, Campaña, México, Lucha Contra la Contaminación, 1971–1991, AE, BMLT. Other sanctions included “temporary, total, or partial seizure of the contaminating sources,” and factory closures, see “Ley Federal,” cap. 5, art. 29-2.

country-wide without help from the municipal level, sounded a death knell to the incipient effort.⁵⁴ Such conditions thus undermined the Sub-Ministry's ability to carry out the law, resulting in an overall underwhelming performance for Mexico's first piece of environmental legislation as well as criticism by the public and the media.

Yet the 1971 law, and, by extension, the work of associated agencies, must be recognized for its definitional accomplishments. While global frameworks for environmental legislation set an example for Mexican laws, the government articulated its own sophisticated conceptualizations of pollution, which attempted to remain sensitive to the nuances of Mexico's environmental conditions.⁵⁵ Furthermore, while it did not directly and immediately improve the city's pollution, the 1971 anti-pollution law's emphasis on public education and the necessity that "every inhabitant of the country be fully aware of the dreadful consequences of pollution," created new understandings of the environment, producing, as Agrawal has described for the case of forest governance in India, new environmental subjects.⁵⁶ Such emphasis would only grow more pronounced in the 1980s and 1990s, as economic crisis and market reforms led to reductions in public spending and a smaller federal presence in atmospheric governance.

By the early 1980s, Mexico City's atmosphere had grown markedly more contaminated, necessitating an overhaul of the 1971 law. In 1982 a new law reworked the earlier legislation. Notably, the *Ley Federal de Protección Ambiental* (Federal Law for Environmental Protection), promulgated by the Miguel de la Madrid Hurtado administration (1982–1988), created new administrative structures for environmental regulation in the Secretaría de Desarrollo Urbano y Ecología (Ministry of Urban Development and Ecology), which replaced the Sub-Ministry of Environmental Improvement. Additionally, the 1982 law allowed for some state-level participation in pollution control, maintained the air quality index system and measurement efforts, required emission control device installations for private vehicles, took a more stringent stance on industrial pollution, and established a system for direct

⁵⁴ Mumme, Bath, Assetto, "Political Development and Environmental Policy," 16.

⁵⁵ As mentioned, articles differentiated between natural and artificial sources of air pollution and, within the latter, between non-stationary and stationary sources, see "Ley Federal," cap. 2, art. 11.

⁵⁶ "Campaña Contra el Smog"; Agrawal, *Environmentality*, 215.

public participation in the bettering of the environment.⁵⁷ With regard to the last objective, the law articulated that concerned citizens could submit complaints to the Ministry that would be addressed on a case-by-case basis through the format of a public hearing.⁵⁸

Despite the new developments, the 1982 debt crisis interrupted the momentum of environmental reform. As political scientist Mark Erik Williams's interviews with former employees of the Ministry of Urban Development and Ecology have shown, the ministry was particularly hard-hit, as it lost more than one-third of its vehicles, one-fifth of its telephones, one-half of its staff, and did not have so much as one computer on which to run tests and analyze pollution statistics.⁵⁹ These deteriorating economic conditions and the subsequent casting aside of environmental regulation and reform efforts nationally led to changes in the discourse deployed by the federal government. Officials increasingly made the case that local knowledge of specific environmental problems was ultimately the best means of creating programs to tackle persistent area-centric issues and that, going forward, environmental reform would be best administered by municipalities.

Ailing capitalinos were the key targets of such discursive shifts and changing approaches to atmospheric governance set in motion by the 1982 law. For instance, at the 1984 meeting of the Federal District Planning and Development Committee, the president of the City Advisory Council addressed Mexico City's air pollution, calling broadly upon "vigilant neighbors" to police private industry and

⁵⁷ "Ley Federal de Protección al Ambiente," *Diario Oficial de la Federación*, November 1, 1982; Comisión Ambiental de la Megalópolis, "IMECA: Índice Metropolitano de la Calidad del Aire," Gobierno de México, September 21, 2018, <https://www.gob.mx/comisionambiental/es/articulos/imeca-indice-metropolitano-de-la-calidad-del-aire?idiom=es>. In an earlier iteration, IMECA was known as IMEXCA. The SMA created the IMEXCA, styled as an "informational program" to "make the community aware of the level of pollution in Mexico City." The IMEXCA translated technical information "associated with the measurement of concentrations of atmospheric pollution into a form that can be understood by the general public." It was not entirely dissimilar to the US NAAQS, though thresholds and definitions varied. As conceived originally, the scale was as follows: from 0–50, the air was of "good quality"; from 51–150, "satisfactory"; from 151–300, "unsatisfactory"; 301–400, "bad"; and 400–500, "very bad." See Maria Teresa Rendón, "El Monóxido de Carbobo Principal Contaminante," *El Día*, January 31, 1978, clipping in L0.02.34, Contaminación Ambiental, Campaña, México, Lucha Contra la Contaminación, 1970–1986, AE, BMLT. Pollution readings for the IMEXCA/IMECA came from a monitoring system, which measured pollutants like sulfur dioxide, carbon monoxide, and ozone, among others, see Guadalupe Valdes, "Instalará México una red de monitoreo atmosférico contra la contaminación," *El Día*, clipping in L6.04.01, Contaminación Ambiental, Campaña, México, Lucha Contra la Contaminación, 1971–1991, AE, BMLT.

⁵⁸ Whether or not public hearings actually took place necessitates further research, as this author was not able to find evidence to give insight on how this process functioned on the ground.

⁵⁹ Williams, *Market Reforms in Mexico*, 138.

prevent them from “discharg[ing] toxic products, releas[ing] harmful fumes...gases, and odors, that...derail the peace and transform the population into aggressive beings.”⁶⁰ Ordinary residents were both given the power of self-management and placed into a narrative of participatory dialogue with an ostensibly open and benevolent state and cooperative private sector. Together, the government and private sector championed the shared responsibility of all citizens to solve the problem of atmospheric contamination. The president of the National Chamber of Commerce even announced his “firm intention of joining the authorities of the country and the central entity of the Republic in this civic crusade [because] to be a good businessman, one must first be a *good citizen*.”⁶¹ The council president further made the case that

Nothing can be done without the systematic and orderly contest of citizenship, which with its criticism, vigilance, and mainly with its participation, gives form and content to the actions of the government. For this reason, citizens must be aware, stimulated, and removed from their apathy. It is necessary [for the government] to offer the elements to continue in this process of regaining confidence in the government.⁶²

As if extending a proverbial olive branch to its citizenry, the government maintained, however vaguely, that it was carving out a greater role for public participation in the anti-pollution effort. Some added an extra layer of nuance, insisting that residents needed to become “*objective* informants.”⁶³ Officials espousing such perspectives insinuated that atmospheric knowledge was not innate, nor could bodies attune to environmental pollution without the help of public servants, like the council president, who should educate and transmit instructions to residents regarding the steps that they could take to help in the effort to rehabilitate the air. These included adding emission-reducing technologies, like catalytic converters, to their vehicles and reporting to officials any illegal practices by businesses and their neighbors. While the documentary trail for this particular initiative regrettably ends here, and thus it may

⁶⁰ Juan José Antonio Garza Hernández to Miguel de la Madrid Hurtado, Transcript of speech, February 10, 1984, 4, 02.02.02, Caja 8, Exp. 4, Ramos Presidenciales, Miguel de la Madrid Hurtado, AGN.

⁶¹ Fernando Marina Janet to Miguel de la Madrid Hurtado, Transcript of speech, February 10, 1984, 1, 02.02.02, Caja 8, Exp. 4, Ramos Presidenciales, Miguel de la Madrid Hurtado, AGN. [Emphasis added by author]

⁶² Garza Hernández to de la Madrid, 5.

⁶³ “Responsabilidad de la sociedad y no sólo el Gobierno, frenar la contaminación,” *El Universal*, March 13, 1986, clipping in L0.02.34, Contaminación Ambiental, Campaña, México, Lucha Contra la Contaminación, 1970–1986, AE, BMLT.

not be possible to determine if or how many citizens surveilled their neighbors, or even whether the government acted on individually reported malfeasances, some neighborhood associations began displaying concern about air pollution, indicating that such discourses permeated into the community level. The Venustiano Carranza Neighborhood Association, for example, became invested in air pollution control and even proposed its own ideas, which were at times contrary to the views of both the government and of larger and more influential environmental groups that had surfaced by the late 1980s.⁶⁴

During the mid-1980s, air emergencies abounded, leading to a reconsideration of the 1982 anti-pollution legislation. In 1988, during Carlos Salinas de Gortari's presidency (1988–1994), a more comprehensive environmental law, the *Ley General del Equilibrio Ecológico y la Protección al Ambiente* (General Law on Ecological Equilibrium and Environmental Protection), replaced its 1982 predecessor.⁶⁵ The emphasis on conducting inspections of industrial facilities, creating a national inventory of emissions, and assessing fines and other sanctions remained constant, but greater collaboration between the federal, state, and local governments differentiated this law from the previous two, which had bestowed the federal government with more power. As a result, the Department of the Federal District gained the authority to implement pollution control in the Mexico City Metropolitan Area. This law also enumerated more concrete and drastic steps for air pollution reduction, including plans to reduce the lead content in gasoline in cooperation with PEMEX, draft and put into practice a daily driving limitation program, and seriously consider a low- to no-emission electric collective transit option to cut vehicular pollution. Finally, this law featured provisions on environmental contingencies caused by atmospheric pollution,

⁶⁴ As officials and environmental activist groups began discussing the possibility of implementing a no-driving day in the late 1980s, this coalition pushed against the proposal to limit driving, arguing that such measures were repressive due to the city's inadequate public transportation system, which could not be counted on as a viable alternative during no-driving days. To cut vehicular traffic and, by extension, pollution, the group favored staggering work hours during the week so that less vehicles were on the road during rush hour periods. However, their workaround ultimately fell on deaf ears with the passing of the No Driving Day program in winter of 1989. See Matilda Perez Uribe, "A favor de los horarios escalonados se pronuncian los vecinos de V. Carranza," *El Día*, January 31, 1986, clipping in L6.04.01, Contaminación Ambiental, Campaña, México, Lucha Contra la Contaminación, 1971–1991, AE, BMLT.

⁶⁵ "Ley General del Equilibrio Ecológico y la Protección al Ambiente," *Diario Oficial de la Federación*, January 28, 1988.

much the same as for other natural disasters like earthquakes.⁶⁶ This law expanded the 1982 national Emergency Contingency Plan, which was based on the IMECA, and enforced restrictions on outdoor activities, vehicle use, and factory operations should the pollution index reach over 200 points—or “very bad”—on the IMECA scale.⁶⁷ Environmental legislation of the 1990s continued to prioritize air pollution, even as it grew worse. Not until the late 1980s and early 1990s government crackdown on vehicular pollution through the Hoy No Circula program (No Driving Day/Day Without a Car), implemented on the heels of the UN’s naming of Mexico’s capital as most polluted, did capitalinos finally find some breathing room.⁶⁸

Initiated in November 1989, Hoy No Circula, an emergency and temporary measure, placed limits on vehicle use. By Carlos Salinas de Gortari’s presidency (1988–1994), vehicular pollution accounted for 80 percent of the total pollution produced by inhabitants of the valley. According to Salinas de Gortari in a 1988 speech, the poor state of the Mexico City environment was a “faithful reflection and direct consequence of our social, economic, and cultural behavior.” The president rationalized that because “[o]ur environment was built by us...its restoration is a challenge for us, for the state—to be sure, but for civil society as well.”⁶⁹ The focus on collaboration between the government and society was consistent with previous environmental policy, but its application to a no-driving day resulted

⁶⁶ An earlier contingency plan, the Emergency Plan to Control Pollution Episodes, was narrowly applied to seasonal pollution episodes caused by winter temperature inversions. See “Se aplica el plan de emergencia contra la contaminación del DF,” *El Día*, May 2, 1982, clipping in L6.04.01, Contaminación Ambiental, Campaña, México, Lucha Contra la Contaminación, 1971–1991, AE, BMLT.

⁶⁷ From IMEXCA to IMECA, terminologies and thresholds changed. Much has been written about the political ecology of environmental emergencies in the recent past. Exemplary among the extant corpus of scholarship is the work of Rebecca Solnit, who writes about the shifting of power relations caused by the destructive forces of natural disasters. While her research mostly speaks to the harrowing, yet sometimes unexpectedly refreshing, realities forged from natural catastrophes normally characterized by a single destructive event or series of easily identifiable events, it does not overlook the slow violence or accumulated effects caused by the less perceptible phenomena of, for instance, climate change. In this context, she contends that “[w]hat can be learned about resilience, social and psychological response, and possibility from sudden disasters is relevant as well for the slower disasters of poverty, economic upheaval, and incremental environmental degradation...” See Rebecca Solnit, *A Paradise Built in Hell: The Extraordinary Communities that Arise in Disaster* (New York: Viking Penguin, 2009), 22, 16.

⁶⁸ Though bringing about improvement in air pollution generated by vehicles was a complicated endeavor, see Lucas W. Davies, “The Effect of Driving Restrictions on Air Quality in Mexico City,” *Journal of Political Economy* 116, no. 1 (2008): 38–81.

⁶⁹ Carlos Salinas de Gortari, “Resolver la contaminación, reto de la sociedad civil y del Gobierno,” in *Reunión sobre los Retos de la Modernización: “Contaminación del aire,”* Speech, February 23, 1988, 4–5, AGN.

in the formation of new environmental subjectivities. To implement the program, the first order of business required mandating obligatory inspections of the nearly three million vehicles already in circulation, especially in the winter, during times of temperature inversion. Second, in addition to biannual exhaust monitoring tests of vehicles already in use, experts would experiment with and set emission limits for new vehicles, “comparable to the strictest international rules” according to Salinas. All vehicles would then be catalogued based on age and the results of the emissions test, and would be assigned one of four possible numbers which drivers would then use to subscribe to a no-driving day during the week.

While many complied with the no driving days partly due to the steep fines that incomppliance brought forth, and while Mexico City residents witnessed almost immediate relief in the form of less traffic and cleaner air, public sentiment illustrates the highly checkered and emotional responses that the program engendered. Some vociferously criticized the program’s “completely authoritative character,” charging that the program infringed on democracy because officials did not take into consideration public opinion, gauge the public’s consent, or ask for alternative suggestions. A day without a car, some opined, was a day without democracy.⁷⁰ Even those who supported the measure made mention to its unpopularity. As reporter Fernando Cesarman reflected,

Limiting the car is not a popular provision [but] the amount of poison in the air is not a secret. We know the situation is worrying. There is consensus on this. The problem of atmospheric contamination places us frontally before a reality that we do not want to see: the city has limits...when it comes to making a personal sacrifice, even though it is in favor of the common good, the ability to collaborate is very small.⁷¹

For advocates of the program, surviving was priority. Others insightfully espoused sentiments that Day without a Car was simply not enough and that Mexico City was just beginning to traverse the long road to environmental justice and salvation. Their frustrations were corroborated when Mexico City rang in a new decade with official UN classification as the most polluted city in the world in 1992.

⁷⁰ Telésforo Nava Vázquez, “Hoy no circula la democracia,” *El Universal*, December 16, 1989, clipping in Stephen Mumme Newspaper Collection.

⁷¹ Fernando Cesarman, “Hoy no circula: Sobrevivir es primero,” *El Excelsior*, November 13, 1989, clipping in Stephen Mumme Newspaper Collection.

Throughout the 1980s and early 1990s, the federal government gradually distanced itself from its coveted status as an enforcement authority on all matters related to the environment, preferring instead to hand over responsibility for pollution abatement to municipalities and even individuals themselves. The centralization that was so dominant in the 1971 law faded to a more hands-off policy, an effect of sweeping neoliberal reforms and privatization, which reduced the pervasiveness of government presence in and spending on social programs or those benefiting the public good and directed it towards the challenge of lowering and reconciling external debts. In some ways, Mexican environmental legislation was an example of politics at work in defense of a common good—laws effectively classified pollutants and, on the surface level at least, set strict parameters for acceptable levels of ambient air pollution emitted by various sources. But in many other respects, official rhetoric exceeded direct action, and environmental reform remained mired in bureaucracy.

Through three national laws, air pollution gained an unparalleled visibility, but so too did the struggles of implementing widescale environmental reform in a short period of time and in the context of an economic breakdown and neoliberal shift, which resulted in a “restructuring of state-civil society relations” and a decrease in public spending.⁷² Citizens partook in pollution-mitigation activities, like the one described at the outset of this section, in performance of their environmental subjectivities, which laws helped to forge vis-à-vis their rhetoric of participatory government, a legacy of the Echeverría administration’s approach to populism. Citizen participation in atmospheric governance, such as the Environmental Improvement Week bike ride, had short-term but noticeable impacts, demonstrating the idea, articulated in a comprehensive 2002 study of air quality research in Mexico City, that “air is resilient,” a principle that guided government policy throughout the last third of the twentieth century.⁷³ However, by the mid-1980s, air pollution became more noticeable, both in terms of the human

⁷² For more on the theoretical and historical foundations for Mexico’s turn towards neoliberalism, see Adam David Morton, “Structural change and neoliberalism in Mexico: ‘passive revolution’ in the global economy,” *Third World Quarterly* 24, no. 4 (August 2003): 633; 636–645.

⁷³ Julia Carabias Lillo, prologue to *Air Quality in the Mexico Megacity: An Integrated Assessment*, edited by Luisa T. Molina and Mario J. Molina (Dordrecht, Netherlands: Kluwer Academic Publishers, 2002), xv.

experience of it and from the attention that environmentally-minded citizens paid to the phenomenon in cultural productions during the last two decades of the twentieth century.

Performing Embodied Environmental Consciousness in the Late Twentieth Century

We live in a city where thousands of people could die. We no longer live in a valley, but in a huge gas chamber.

Fernando Benítez, journalist and member of the Mexican Ecological Movement, 1987⁷⁴

Dystopic sentiments about the quality of life in Mexico City, very much akin to that of Fernando Benítez's, were widely held by capitalinos in the 1980s, a decade when month-long air pollution episodes profoundly altered the way of life.⁷⁵ In fact, Benítez's opinion of the capital could be interpreted as rather tame compared to earlier appraisals, such as that of an *El Universal* reporter, who in 1981 called it the "monster of a thousand heads...like Hydra of Greek mythology, [the monstrous megalopolis] threatens to devour us with her jaws of smog and pollution, of trash and insalubrity, of schizophrenia and fear, of insecurity and heartbreak."⁷⁶ Pollution, caused by a "development so promised...that has not arrived [but for which] enormous resources have been sacrificed with the lure of obtaining it," had produced an "environmental catastrophe" in Mexico City, in the words of the founder and director of Mexico's Centro de Ecodesarrollo (Center for Ecodevelopment), Iván Restrepo Fernández.⁷⁷ His 106-page 1983 report, titled "Status of the Environment in Mexico: An Overview," provided a sketch of late-twentieth-century Mexico City in which he argued that the capital "has become a space in which the majority of natural and artificial pollution is concentrated: areas affected by erosion, trash and open-air waste,

⁷⁴ Quote in Philip Bennett, "Trouble in the air in Mexico City," *Boston Globe*, February 9, 1987, 2.

⁷⁵ According to one source, in 1981, Mexico City experienced intense temperature inversions twenty to twenty-five days of every month during the dry season (roughly November to April), see Enrique Tolivia Meléndez, "La contaminación atmosférica," in *El medio ambiente en México: Temas, problemas y alternativas*, ed. Manuel López Portillo y Ramos (México, DF: Fondo de Cultura Económica, 1982), 162.

⁷⁶ Juan Capote Orozco, "Monstruo de mil cabezas," *El Universal*, December 4, 1981, clipping in Q0.47.22, Contaminación del Aire, AE, BMLT.

⁷⁷ A government-funded research institute, the Center for Ecodevelopment was created in 1972 as a result of the global sustainable development push, initiated during the June 1972 Stockholm Summit. See Iván Restrepo Fernández, "Propuesta formal para que el Centro de Ecodesarrollo funcione en México como Centro Nacional del Sistema INFOTERRA-PNUMA," Letter, August 1983, Centro de Ecodesarrollo, A.C., Exp. 95, Dictaminación de Documentos, AGN. For quoted material above, see Restrepo, "El Estado del medio ambiente," 49.

infected subsoil by untreated waters, factories...and refineries, ...millions of automotive vehicles and planes.” In total, he wrote, “these sources emit around 6,000 tons of contaminants daily into the atmosphere.”⁷⁸ Restrepo concluded with a revelatory accusation: “In the eighties, Mexico City...became the city of catastrophes, largely because government discourse and regulations are dead letters, they are simply not enforced or followed.”⁷⁹

Indeed, popular perceptions of Mexico City in the 1980s and early 1990s commonly reflected the idea that the city had become unlivable due, in large part, to its toxic air. Intense thermic inversions regularly lasted multiple days with little break in between successive pollution events, leading some newspapers to forecast an “inevitable catastrophe” and “tragedy” reminiscent of the 1952 London Fog, to which thousands had succumbed.⁸⁰ All the while, however, the Ministry of Urban Development and Ecology (the federal environmental regulation entity that replaced the Ministry of Health and Welfare) routinely labeled pollution as “alarming but not catastrophic.”⁸¹ Unconvinced citizens frequently and publicly levied scathing critiques of the capital and of the unrelenting air pollution therein during this period, as evidenced by the quote in the preceding section made by Homero Aridjis, renowned scholar, environmental activist, and founder of the prominent environmental advocacy group, El Grupo de los Cien (The Group of 100).⁸² Though Aridjis’s criticisms often took the form of poems, perhaps one of his most memorable manifested as “ecoactivist performance,” defined by performance studies scholar Baz Kershaw as a “resistant representation to raise general ecological awareness.”⁸³

⁷⁸ Restrepo, “El Estado del medio ambiente,” 52. He specified that automobiles, which had reached 3 million (a thirty-fold jump from 1940 to 1980) accounted for an overwhelming majority (75 percent) of the valley’s particulate pollution, while industry was responsible for 20 percent of the total emissions, see pgs. 49–57.

⁷⁹ Restrepo, “El Estado del medio ambiente,” 84–85.

⁸⁰ Juan Manuel Vignon, “La ‘inversión térmica,’ un alerta sobre el riesgo de una catástrofe,” *El Universal*, January 15, 1986, clipping in L6.04.01, Lucha Contra la Contaminación, Contaminación del Aire, 1970–1986, AE, BMLT.

⁸¹ Restrepo, “El Estado del medio ambiente,” 76.

⁸² A recent study of drought leading up to the Mexican Revolution through the perspective of newspaper accounts also conceives of environmentally-oriented journalism as deeply political, and labels such sources “politico-environmental coverage.” See Mikael Wolfe, “The Climate of Conflict: Politico-environmental Press Coverage and the Eruption of the Mexican Revolution, 1907–1911,” *Hispanic American Historical Review* 99, no. 3 (August 2019): 470.

⁸³ Theatre and performance studies scholar Baz Kershaw defines ecoactivist performance as “resistant representations to raise general ecological awareness.” Ecoactivist performance was a common late-twentieth-century protest mechanism to “gain high-profile media space.” It is, in the words of Kershaw, where “art and environment, performance and ecology...successfully meet in resistance to a global progress that is killing us all.”

On a late-1980s winter morning, Aridjis scaled Chapultepec hill, dressed in a beige suit, the day's newspaper in hand. Upon arriving to the terrace of Chapultepec Castle, Aridjis, positioned with his back to the busy city beneath him, posed for a photograph (**Figure 4.1**). Aridjis, however, was not the subject of the resulting image; the newspaper which he had energetically brandished for the photograph was.



Figure 4.1: Aridjis and Embodied Environmental Performance at Chapultepec. Ed Vulliamy, “Mexico’s natural wonders are under threat. Can a poet save them?” *The Guardian*, August 23, 2018. Credit: Homero Aridjis, Courtesy of Guardian News & Media Ltd.

“7 DAYS: OZONE AT 300 PTS.,” declared the headline of the paper in large black letters, indicating that Mexico City had reached—and sustained—dangerous pollution levels for the past week according to the IMECA. Though not confirmed by the picture, a 300-point reading would have triggered a Stage 1 contingency alert as per Mexico’s Environmental Contingency Plan, which, at the first stage, mandated a 30- to 40-percent reduction in industrial activity, suspension of outdoor activities for primary and secondary students, and a 50-percent reduction in vehicle use, among other restrictions.⁸⁴ Sporting a

See Baz Kershaw, “Ecoactivist Performance: The Environment As Partner in Protest?,” *The Drama Review* 46, no. 1 (Spring 2002): 118, 119.

⁸⁴ See Comisión Metropolitana para la Prevención y Control de la Contaminación Ambiental en el Valle de México, *¿Qué estamos haciendo para combatir la contaminación del aire en el valle de México?*, 1992, Pamphlet, Caja 2, Exp. 4, 19.01.06.00, Secretaría de Desarrollo Social, Centro de Documentación de la Gestión Gubernamental, AGN.

solemn expression, Aridjis was claimed to have warned “Do not breathe today, or tomorrow.”⁸⁵ The symbolic importance of the location chosen by Aridjis was also evident, as Chapultepec hill has, since the nineteenth century, drawn in many a tourist in search of a scenic view of the city, as Chapter One has shown. Atop the hill or on the castle’s garden terrace, nineteenth-century onlookers often “gaze[d] upon the world,” and were afforded a “wide view of the beautiful city, enclosed between amethyst hills,” the clear sky facilitating their atmospheric engagements.⁸⁶ As their travel diaries and writings revealed, such experiences were cathartic for the travelers of the era of transparent air; they allowed spectators to see the valley and submit to the all-encompassing power of the overwhelming sky, which took on vivid colors and pleasant scents and temperatures. In the photograph produced by Aridjis, however, a hazy film blurs the view and a grey sky appears static and unwelcoming. Aridjis’s presence reveals why, as he forces the newspaper to the foreground, its urgent message taking precedence over the view and over Mexicans’ right to enjoy it. In this corporeal re-enactment of environmental awareness, Aridjis had placed his body in the line of an invisible hazard, rendering plain both the harmfulness of the air that citizens breathed and the powerlessness of individuals against it. As Aridjis’s performance implied, the government needed to take a more active role in pollution reduction.

Likely to the dissatisfaction of environmentally-minded figures like Aridjis, by the mid-1980s, Mexico City began suffering from disastrous air pollution, and the government grew increasingly reticent about implementing stronger anti-pollution measures and improving transparency with regard to the actual conditions of air pollution. A string of bird deaths in 1986 and 1987, however, did much to incite popular discord, because they revealed politicians’ inclination to prioritize other concerns, such as economic recovery from the 1982 debt crisis, over environmental issues. In January of 1986, for example, an intense air pollution spell left parts of Mexico City an impromptu avian burial ground after a swath of pigeons appeared to have mysteriously dropped dead mid-flight. Dr. Tomer Anbar, a well-connected behavioral psychologist, was one of the many unlucky residents to wake up to the sight of a dead pigeon

⁸⁵ Ed Vulliamy, “Mexico’s natural wonders are under threat. Can a poet save them?” *The Guardian*, August 23, 2018.

⁸⁶ Bishop, *Old Mexico*, 235.

atop the grass of his front yard.⁸⁷ Anbar, a cat owner, recalled to the *Chicago Tribune*, that he had instinctively dismissed the bird as an unfortunate victim of his cat's evening antics. Yet the doctor could not help but to quickly scan the entirety of his lawn, his eyes tracing in bewilderment mound after mound of similarly sized lifeless bird bodies on his property. Perplexed as to the circumstances that led to the mass bird deaths, Anbar contacted colleagues at the National Polytechnic Institute to perform toxicity tests.

His suspicions that the noxious air perpetually draped over the city had poisoned the birds, causing them to drop from the sky, were confirmed when the results showed that the bird tissue contained heavy traces of lead, cadmium, and mercury, a trio of heavy metals, which if repeatedly ingested, can prove deadly.⁸⁸ But since the 1970s, when air pollution had become part of the political agenda, authorities espoused a pattern of downplaying the city's air pollution. In 1975, for example, José R. Salido, the public relations director of the Sub-Ministry of Environmental Improvement, once suggested that "much of what seems like smog is really a natural heavy mist, which even the Spanish conquerors noticed when they arrived," harkening back to the colonial period, when the city was known for its brilliant, clear air.⁸⁹ Other times, officials argued that the struggles of other large cities paled in comparison to those of Mexico City's. Alessio Robles, Mexico City's planning director in 1975, implied as much when he was recorded saying, "Mexico does not have the dehumanization of New York, the irascibility of Paris, the traffic of Rome or Tokyo, the accumulation of garbage of Chicago or the gangsterism of Washington." In a similar way, after making his annual report to the president in September of 1975, the mayor of Mexico City spoke about its environmental problems. "Mind you, I'm not saying we're perfect, but conditions are *not too bad*," he proclaimed, "I do not think that this city will

⁸⁷ Vincent J. Schodolski, "On a Clear Day, You Can Nearly See Across the Street," *Chicago Tribune*, February 4, 1986.

⁸⁸ "Miles de aves murieron por la infección; altera sobre daño a niños y ancianos," *Unomásuno*, February 4, 1987; Larry Rohter, "Mexico City Journal; Season of Smog in 'Makesicko City'," *New York Times*, January 16, 1988; "En el IPN, investigaciones de laboratorio para determinar la muerte de pájaros en la ciudad," *Unomásuno*, February 6, 1987.

⁸⁹ Stanley Meisler, "Nation too Poor to Cope, Mexico City: The Head that Outgrew its Body," *Los Angeles Times*, October 20, 1975, B1.

become so dramatically complicated that it will perish someday...At heart, our city is deeply human.”⁹⁰

Yet Anbar’s experience, as bizarre as it may have seemed, told a different story, as it was only one of many across Mexico City during the mid-1980s, and it was indeed indicative of a compromised and uncomfortable quality of life in many of the ways that officials had expressly suggested it was not. Other capitalinos encountered more gruesome scenes, including hundreds of birds “writhing on the ground” before perishing away, a most violent death.⁹¹

The spectacle of seeing birds suddenly plummeting to their deaths from seemingly out of nowhere drew much public consternation but at the time produced only lukewarm—and informal—responses from the city government. Despite city officials’ opinions that either disorientation, fatigue, or illness provoked by a contaminated food source precipitated the dead bird phenomenon, in popular memory, air pollution is the accepted basis.⁹² Reflected in a shared concern among individual city dwellers, community groups, and environmental awareness organizations, as well as in the plentiful media coverage of these events, the mania surrounding this and other instances of mass bird deaths represented the most visible manifestation of Mexico City’s air pollution crisis since legislation first began targeting the capital’s dirty air in 1971.

Bird deaths were pivotal to empowering a conceptual transformation about the air among the general public. The elusiveness of air pollution—caused both by its invisibility and its normalization by authority figures—had long tempered the risks of pollution, allowing pollution to maintain some semblance of ambiguity as to the extent to which dirty air posed an immediate risk to human health, despite the fact that throughout the 1970s, doctors had reported increases in “mental illness, anxiety, heart attacks, lung cancer, deafness, pneumonia, chronic bronchitis and alcoholism” perhaps, they argued, “brought on by the city’s *pollution and congestion*.”⁹³ However, the demise of birds on such a massive scale

⁹⁰ Meisler, “Nation too Poor to Cope.”

⁹¹ On the memorialization of this event, see Monica Campbell, “Why Mexico City’s bad air can’t be ignored—or easily fixed,” *PRI’s The World*, May 12, 2016.

⁹² “Los pajaritos murieron de cansancio, dice Sedue,” *La Jornada*, February 4, 1987; “Sobre la muerte de pájaros en la Lomas de Chapultepec,” *Unomásuno*, February 5, 1987.

⁹³ Alan Riding, “Mexico City, Intent on Healthy Economy, Suffers Its Smog: Poor Lands Favor Industrialization, Economic Problems Cited,” *New York Times*, January 30, 1978, A2. [Emphasis added by author]

added a sense of urgency to the air pollution problem, showing that if air could poison avifauna and cause swift and violent death, then humans were likely not immune to its effects and that the bodily consequences of breathing vitiated air would inevitably make themselves known over the long term. Moreover, the bird fatalities of the mid-1980s were memorialized as *events*—intense phenomena with beginnings and ends, much like the more spectacular disasters that habitually afflicted the valley—rather than a facet of everyday life. Circumscribing air pollution as an event brought it closer to socially-accepted definitions of disaster in the minds of many Mexicans, who, in various ways, demonstrated such realizations over the 1980s and 1990s.

One of the ways in which Mexicans communicated nuanced understandings of air pollution was through art. Images, in particular, were persuasive and powerful visualizations of ecological and environmental rhetoric. They had popular and emotional appeal, inspiring critical reflection of dominant perspectives. Of particular importance is the work of José Palomo Fuentes, a Chilean exile living in Mexico City who started his comic series, “El Cuarto Reich,” to protest the problems afflicting Latin America, including unequal urban development, poverty, and the environmental crises that these processes spawned. Palomo’s environmentally-charged cartoons featured prominently in popular dailies during the 1980s. Often satirical and dark in tone, Palomo’s illustrations displayed nameless and sometimes faceless protagonists having important conversations about politics, economics, corruption, and environmental degradation amidst a collective, disinterested public while doing everyday things, like sitting in traffic or taking a bus ride. Palomo avidly used embodiment to convey the ways in which air pollution affected the daily life of residents. In one cartoon, for example, dark exhaust clouds envelope the characters to the point where they cannot see beyond their noses, caused residents to miss their bus (**Figure 4.2**). Shouting expletives, one of the figures, cloaked by a black cloud of soot, exclaims that he had missed his bus. When prompted by another similarly veiled figure how he knew the bus had passed if no one could see past their noses due to the pollution, the main character responded: “by the noise of the motor!” Sight and sound were thus important modes of sensing air pollution.

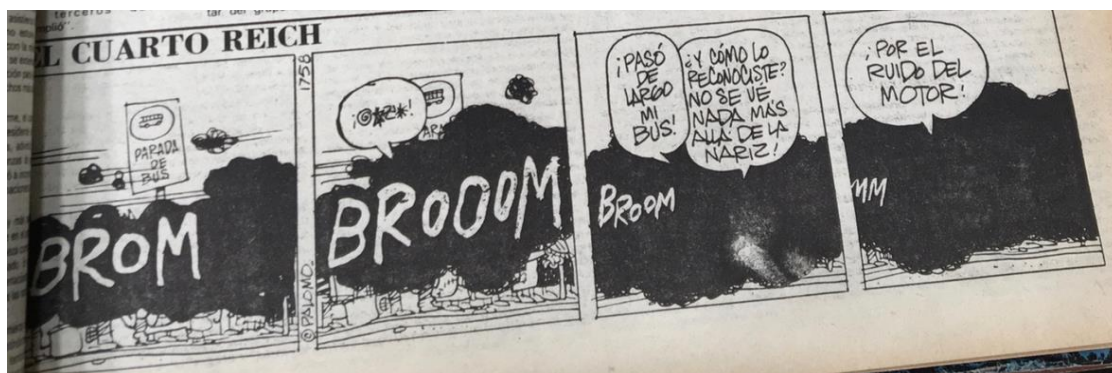


Figure 4.2: Sensing Pollution, Air and Noise. José Palomo Fuentes, “El Cuarto Reich,” *Unomásuno*, October 5, 1982, Hemeroteca, BMLT.

In many environmentally-oriented cultural productions, technical expertise and intellectual knowledge indeed supply critical context, but embodiment also informed how and what Mexicans thought about their surroundings. Through trial and error, many residents cultivated a sort of sensorial acumen for air pollution detection. They learned, for example, to gauge air quality levels by looking to the mountains: air pollution was the likely present if the mountains were not in view. Ways of knowing were also intimately tied to ways of coping, as Mexico City residents had developed habits and behaviors aimed at protecting themselves from the noxious air supply or minimizing the health impact caused by prolonged and unavoidable exposure. For instance, medical professionals commonly advised city dwellers who were “increasingly suffering from infections” to “clean out [their] eyes at least once daily—the way you wash your hands.”⁹⁴ How people sensed and made sense of the air pollution was thus intricately connected to the effects, perceived or real, on the body. In turn, the human body, rather than learned expertise or technological gadgets, was both a barometer for the invisible dangers lurking in the air and a key element in the production of cultural discourse around air pollution.

Another of Palomo’s cartoons, which takes on noise pollution by buses and motorcycles, demonstrates this notion (**Figure 4.3**). In the image, a mass of people waits for the late bus at a bus stop. A motorcycle loudly drives by, prompting an unidentified voice to angrily speak up: “[w]e do not only

⁹⁴ Kevin M. Kelleghan, “Mexico City’s Smog Situation as Bad as Chicago’s,” *Dallas Morning News*, February 26, 1970.

need awareness of the harmful noise pollution but we also need to include the *feeling of the vibrations?*

Embodiment here lends itself to a nuanced, multidimensional understanding of the problem of environmental contamination and its many side effects. On-the-ground experiences taught residents that pollution could feel a certain way—vibrations left behind by a passing motorcycle were not included in legal definitions of air pollution, but through corporeal consciousness, citizens learned that pollution had far-ranging effects on the body. Still another cartoon suggested that capitalinos’ knowledge of environmental pollution was not limited to atmospheric or noise pollution, but water pollution as well (**Figure 4.4**). Palomo reconstructs a multi-sensorial experience, this time from the point of view of two birds perched on top of a trash pile while a pipe spews sewage into the thick, black water. While one of the birds details how the smell of the contaminated water has affected his quality of life; the other mentions that he has forgotten sounds—the “auditory pollution—that disrupt their sleeping cycles.

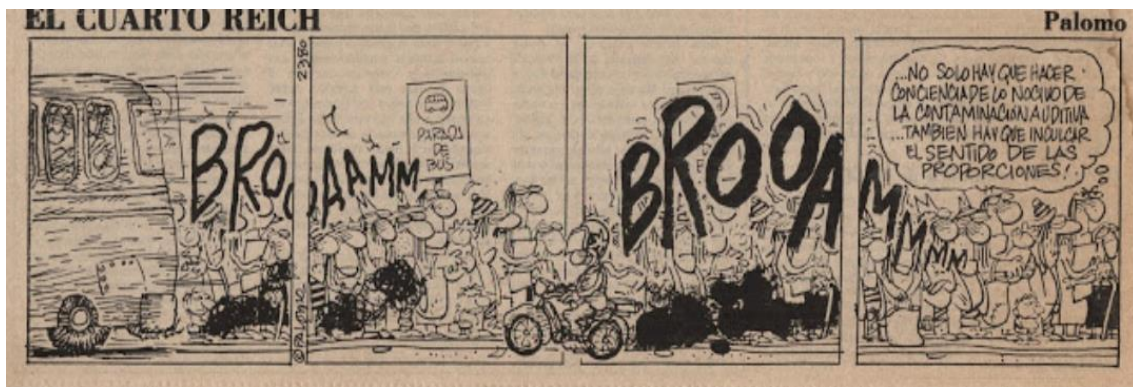


Figure 4.3: Environmental Awareness of Pollution: A Bus Stop Scene. José Palomo Fuentes, “El Cuarto Reich,” *Unomásuno*, n.d. [ca. 1982–1984], Hemeroteca, BMLT.



Figure 4.4: Pollution Causing Ecological Disruption. José Palomo Fuentes, “El Cuarto Reich,” *El Universal*, n.d. [ca. 1980s], Fotogalería, El Universal Online. Available from https://fotos.eluniversal.com.mx/coleccion/muestra_fotogaleria.html?idgal=1253.

At the same time that Palomo’s work showed the deeply invasive ways that pollution writes itself on capitalinos’ bodies, it also demonstrated the degree to which atmospheric contamination had become a stale topic among residents. In one 1982 cartoon, a mass of straight-faced, tight-lipped civilians wait in a messy line at a bus stop. Zooming past them is a departing bus that has left in its trail dark and ominous clouds of exhaust smoke that assault the faces of passengers. Other black clouds loom casually in the background, covering the faces of some who literally embody the pollution they inhale. One resident begrudgingly remarks to no one in particular that he has “...heard that the air is becoming more contaminated every day.” A resounding silence, or perhaps more likely, apathy, follows, after which the same character exclaims, “...but I never thought that much!” While the lack of response from the fellow commuters can certainly carry multiple meanings, one can assume that the group pictured is either aware of the dangers of ambient pollution and has, like our main character, normalized it to an extent such that only glaringly obvious offenses are enough to warrant surprise, or is generally disinterested. This and the other cartoons described above constituted satirical and thinly-veiled responses to the government’s argument that education or conscientization campaigns, instead of more direct action, were the path to solving the pollution problem. Teaching the general populace about conservation and about the consequences of environmental neglect could only do so much. The public, as Palomo implied, generally knew about pollution. In the face of government neglect and the overwhelming scale of the problem of

air pollution, however, Palomo portrayed individuals as ultimately helpless. Coping and internalizing the disastrous pollution was the only recourse for capitalinos.

In some cases, as another 1980s cartoon illustrates, air pollution had caused citizens to consider leaving the city altogether (**Figure 4.5**). In the cartoon below, which depicts a conversation between two commuters on a crowded bus, the protagonist claims that his wise cousin had found a solution to the smog problem. The curious friend ponders this possibility, offering up his own theories: “What does he propose?” he inquires, “[o]bligating motor tunings, promoting bicycle use, increasing the price of gasoline?” The leading character simply replies, “No, he left to go live in the countryside!” In this example, the “solution” to pollution in Mexico City is that there is no solution, at least not via city government channels or through behavioral change. The only answer as perceived by the Palomo was for one to physically remove oneself from the harmful environment. Indeed, mass exodus was a proposed alternative recommended by urban development experts in other Mexican cities, such as Monterrey, another pollution center. The program, known as “Exápolis 2000,” envisioned alleviating citizens of air pollution through family planning programs to slow the growth rate, or by building an urban network that would relieve some of the demographic pressures that large conurbations like Monterrey and Mexico City faced.⁹⁵

⁹⁵ President Luis Echeverría started Family Planning Centers to curb Mexico’s pattern of high rate of population increase in the last third of the twentieth century. At 3.6 percent in 1977, Mexico’s annual population increase was “one of the highest in the world,” and Mexico City felt much of the strain, as it laid claim to a disproportionately elevated percentage of the national population. The López Portillo administration similarly placed an emphasis on family planning, and a late-1970s economic report issued by Allen W. Lloyd and Associates indicated that the family planning efforts resulted in a decrease in the growth rate for the first time in 1977. Their projections aimed for a 2.5-percent growth rate by 1982 and 1 percent by 2000, although these ambitious forecasts did not come to fruition. See Allen W. Lloyd y Asociados, S.A., *Lloyd’s Mexican Economic Report*, Report, December 1977, Centro de Ecodesarrollo, A.C., Exp. 187, Dictaminación de Documentos, AGN. See also Javier Mendoza Maya, “Exápolis 2000, un proyecto a largo plazo para liberar de la contaminación a Monterrey y sus zonas aledañas,” *El Universal*, August 2, 1982, clipping in L6.04.01, Contaminación Ambiental, Campaña, México, Lucha Contra la Contaminación, 1971–1991, AE, BMLT.



Figure 4.5: Leaving Mexico City to Escape Pollution? Conversations Between Residents. José Palomo Fuentes, “El Cuarto Reich,” *Unomásuno*, November 22, 1981, Hemeroteca, BMLT.

Comics and cartoons were an effective way to communicate discontent. So was activism and popular organization. Recurring air pollution emergencies, as well as the absence of freely available information about air pollution, led to the rise of Mexican environmentalism, or the Green Movement as labeled by some scholars.⁹⁶ Scientists, artists, intellectuals, and everyday citizens alike placed their diseased bodies on the frontlines, in the plain view of the public sphere. Whether independently or as members of popular coalitions or an activist network, they hoped to combat further ecological decline by shining a spotlight on the government’s negligence and inability to curb some of the country’s stubborn environmental problems, such as urban air pollution and biodiversity loss. As scholar Jordi Díez has explained, late-twentieth-century environmental activism grew out of an increasing consciousness about the “environmental repercussions of Mexico’s post-war development,” writ large in the unequal development of the country, the pilfering of natural resources for the benefit of prolonging industrialization past its perceived point of usefulness, the noxious atmosphere that infiltrated Mexico City, and the habitual occurrence of environmental disasters.⁹⁷ Indeed, it was a “natural” disaster—the

⁹⁶ Jordi Díez, “The Rise and Fall of Mexico’s Green Movement,” *European Review of Latin American and Caribbean Studies* 85 (October 2008): 81–99. Mexico’s “Green Movement,” a period of popular environmentalism in the 1980s and 1990s, is separate from its earlier “Green Revolution,” which centered on increasing agricultural productivity in the 1940s.

⁹⁷ Díez, “The Rise and Fall,” 81.

1985 earthquake, combined with slow government response—that unveiled the inadequacy of the federal government in moments of crises, a level that air pollution itself had reached. Citizens who organized thus demanded increased government accountability and transparency. Art, poetry, and performance became tools in the protest of worsening environmental conditions during the waning decades of the twentieth century. Much like Palomo’s cartoons, activists’ creative outputs were also produced from full-bodied ways of knowing, and reactions to, an elusive environmental disaster. Yet the act of protest was also something more; in protest, Mexican citizens denounced a tired government narrative that painted residents as either uninformed about the true nature of air pollution, which officials maintained was not as grave or pressing as media reports and some scientists claimed, or as simply not doing enough to learn about or support the government’s anti-pollution initiatives. As anthropologist Jeffrey S. Juris’s ethnographic study of activism has demonstrated, the performative politics of protest provide a “theatrical space where oppositional politics are communicated and new subjectivities are forged.”⁹⁸

By far the most successful example of environmental activism Mexico was the formation of the Grupo de los Cien. Its founding was in itself a dramatic display of environmental consciousness, as the manifesto, penned by Aridjis, was presented to a cadre of influential officials. On April 26, 1985, Aridjis delivered his March 1 “Declaration of 100 intellectuals and artists against air pollution,” self-styled as a “fierce critique...of the environmental havoc in which we lived.”⁹⁹ Decades later, in an oral history interview, Aridjis revealed that an embodied encounter led to this public display of discontent. The March 1 declaration, otherwise known as the “Ecological Letter,” which also spurred the founding of the Group of 100, was motivated by the environmental situation of Mexico City in February of 1985. He recalled feeling the effects of latent environmental dangers on his body: “Mexico City,” he began, “was suffering of terrible pollution, such a pollution that, sometimes as you were walking down the street, you

⁹⁸ Jeffrey S. Juris, “Performing politics: Image, embodiment, and affective solidarity during anti-corporate globalization protests,” *Ethnography* 9, no. 1 (March 2008): 65.

⁹⁹ Homero Aridjis, Interview with Melissa Tuckney, March 22, 2012.

have the feeling that you are probably going to die in the next corner.”¹⁰⁰ For Aridjis, embodied knowledge culled from something as unremarkable as a daily walk translated into direct action.

In the auditorium of UNAM Radio, the National University’s official radio station, Aridjis staged a poetry reading along with seventeen other writers who also read their respective works. Mexico’s *Excelsior* newspaper called it a “poetic fertility...an environment that was hopeful at times and in other moments, solemn.”¹⁰¹ The mayor of Mexico City, the head and undersecretary of the Ministry of Urban Development and Ecology, and the secretary of the Federal District’s Urban Development and Ecology office were all in attendance at the instruction of President Miguel de la Madrid Hurtado, who had invited Aridjis and a few others to lunch the week prior to discuss their proposal. The president had commented that he sent these officials to “establish a dialogue with the intellectuals and to talk about forming a concrete plan.”¹⁰²

This public gathering also served as the first meeting of the Group of 100, an alliance of environmentally-minded scholars, poets, artists, and activists whose membership included the likes of Octavio Paz, Carlos Fuentes, Gabriel García Márquez, and many other celebrated names. Los Cien rallied around the central premise that all Mexicans had the right to a safe environment and a secure future. Aridjis initiated the meeting by asserting his—indeed, the general population’s—entitlement to participation in issues that concerned the society at large. “It is important that the poet participates and questions the social environment of which he is a part. I believe in the poet as a man who must tell the truth; in a society where everyone lies, the poet, before anyone else, must be committed to the truth,” he proclaimed. The poet, according to Aridjis, was bound to a certain morality, a value that others, especially politicians and businessmen, did not share. “People believe in the poet more than the politician,” he suggested, “because he speaks from within, and [the people] sometimes identify more with feelings.” Affective discourse, he implied, was a more efficient means of reaching the public. Lastly, the poet, in

¹⁰⁰ “Homero Aridjis: A Poet Protects the Monarchs, Sea Turtles & the Whales,” Homero Aridjis, Interview with Leila Connors, 2006.

¹⁰¹ Patricia Rosales y Zamora, “Desea MMH Diálogo Entre Autoridades e Intelectuales,” *Excelsior*, April 26, 1985, clipping in L6.04.01, Lucha Contra la Contaminación, Contaminación del Aire, 1970–1986, AE, BMLT.

¹⁰² Rosales y Zamora, “Desea MMH.”

acting on his beliefs and “question[ing] the destruction” of his world was also exercising his patriotic duty to “defend the integrity of the country.” The activist-poet was, in other words, a nationalist. In defining the group’s identity, Aridjis co-opted the state’s vision of what a “revolutionary civism”—and environmental subjects—should look like. To be sure, environmentalists like those of the Group of 100 were not overly acquiescent to the maneuverings of the political elite; they successfully put pressure on authorities to claim a stake and carve out a role in environmental policymaking. But, in this and other critical moments, Aridjis saw an advantage to leveraging from a predetermined narrative created by the government, if only to forcibly create a democratic opening for air-centric discourse in politics.

Despite these initial proclamations, Aridjis also recognized that “these actions today will likely not stop pollution from getting worse in Mexico City, but it is the citizen’s duty to question and speak out about the great danger in which we find ourselves.”¹⁰³ Indeed, Aridjis’s last point was prophetic, as Mexico City would go on to experience dangerous air quality levels in the coming years, reaching as high as 343 of a possible 500 points on the IMECA scale.¹⁰⁴ Yet the coming together of the Group of 100 was successful on multiple other levels. First, this meeting, and UNAM’s broadcasting of the performance, helped retool the public perception of artists and intellectuals, dispelling the image of artists and writers as members of the cultural elite, out of touch with conditions on the ground. As one reporter wrote of the occasion, “[t]oday Mexican thinkers, artists, and intellectuals in general have demonstrated that they do not live in the Nirvana of their own lucubrations, but rather in the stubborn reality of each day.”¹⁰⁵ At the same time, however, the rhetoric espoused by Los Cien at this first meeting fed amiably into a pre-written role, crafted by the state, for *responsible* and *objective* environmental subjects. As defined by an *El Día* journalist, the group’s mission—to “make a reality of the words of don Alfonso Reyes,” in *Visión de Anáhuac*, who immortalized the Humboldtian saying, “Visitor, you have arrived at the region of most

¹⁰³ Rosales y Zamora, “Desea MMH.”

¹⁰⁴ “Grave inversión térmica en el noroeste del DF,” *El Universal*, January 30, 1986, clipping in L0.02.34, Contaminación Ambiental, Campaña, México, Lucha Contra la Contaminación, 1970–1986, AE, BMLT.

¹⁰⁵ Pedro Baroja, “Participar La Lucha de Todos,” *El Excelsior*, February 11, 1986, clipping in L0.02.34, Contaminación Ambiental, Campaña, México, Lucha Contra la Contaminación, 1970–1986, AE, BMLT.

transparent air”—was generally considered a worthy pursuit, and even inspired later and stronger iterations of embodied environmentalism organized on the basis of collective cooperation.¹⁰⁶

Following the precedent set by the Group of 100, other organizational efforts crystallized. On Earth Day in 1991, for instance, a large group of Mexico City residents unveiled plans to amass a million signatures from neighbors and fellow urbanites and mobilize a cross-class, non-partisan citizen network and movement against the continued pollution of their city. They desired to establish “committees of ecological creativity” throughout the impoverished areas of the city, in schools, and in places of work, literally “deploy[ing]” their bodies to peripheral areas of the Federal District.¹⁰⁷ This was not the only initiative to spring from the foundation set by the Group of 100. Instead, it is representative of the values and approaches to which future groups would adhere. Whether such groups and efforts encountered success or failure, environmental subjects during the last two decades of the twentieth century took ownership of Mexico City’s air, staking a claim in a safer, more breathable future. Such ambitions were fundamentally risky, however, as environmentalism is considered one of the most dangerous activities, not only in Mexico but throughout Latin America. In Mexico, identifying as an environmental activist is so dangerous that it often carries a death sentence, as a March 2019 report published by the Mexican Center of Environmental Rights confirmed.¹⁰⁸ Environmental activism brings into public view the dubious and, in many cases, illegal activities of corporations and the ways in which the state has conspired to defend private interests over the common good.

Popular cultural works, from the prolific Palomo’s cartoons, to Aridjis’s embodied performances and March manifesto, to journalists’ sensationalized editorials are essential to understanding the way

¹⁰⁶ Luis Cordova, “¿Nos ahogará la contaminación?,” *El Día*, July 30, 1985, clipping in L0.20.37, Contaminación Ambiental, México, Lucha Contra la Contaminación, 1970–1986, AE, BMLT.

¹⁰⁷ Julio Moguel, “Día de la Tierra: Un millón de firmas por un ambiente sano,” *Unomásuno*, April 22, 1991, clipping in L6.04.01, Contaminación Ambiental, Campaña, México, Lucha Contra la Contaminación, 1971–1991, AE, BMLT.

¹⁰⁸ Alejandra Leyva Hernández, Rita Chantal Reyes Medina, Cristina García Bravo, José Carlos Juárez Pérez, *Informe sobre la situación de las personas defensoras de los derechos humanos ambientales* (Ciudad de México: Centro Mexicano de Derecho Ambiental, 2019). In 2020, multiple high-profile assassinations of environmental activists in Mexico made global news. See “Environmental activist killed in Mexico—the third this year,” *Associated Press*, April 14, 2020; “Killing of environmental activists has become ‘norm’ in Mexico, activist says,” *The World*, February 6, 2020; “Mexico Violence: Why were two butterfly activists found dead?” *BBC News*, February 14, 2020.

everyday citizens acted out their environmental positionalities. When paired with official rhetoric and legal definitions, the body of sources analyzed in this chapter reveals the importance of air to the late-twentieth-century historical experience of Mexico City, a place that had found itself perpetually in crisis, both environmental and otherwise. Politicians, and the laws they enacted throughout the last third of the twentieth century, envisaged specific roles for environmental subjects—citizens who, for a variety of reasons including health and ecological, should become aware of and concerned by air pollution according to the state. Residents of the capital indeed demonstrated their environmental awareness, sometimes following the script set by the government and other times on their own accord and in extremely sophisticated ways.

Seen through the lens of popular cultural sources, it is evident that everyday residents not only learned how to sense pollution, but they began to perceive of pollution as something akin to an ecological disaster. “Will pollution drown us?” pondered an *El Día* journalist in 1985, capturing the mood of many residents fearing the worst.¹⁰⁹ Certain environmentally-minded capitalinos, like Aridjis, appropriated the official rhetoric espoused by the state, which, since the early 1970s, had called for a responsible civism and collaboration from the citizenry, in order to portray the public as knowledgeable of pollution and signal to the government that perhaps what Mexico City needed most was direct action and enforcement of existing legislation.¹¹⁰ Others, like Palomo, were more forceful in their convictions, and suggested that relying on the government was a lost cause.¹¹¹ Whether they put their bodies in harm’s way, mounting protests or staging performances, or took to the pen instead, illustrating bodily and affective ways of knowing the environment and the invisible dangers therein, residents instilled a previously unfelt urgency into the pollution problem during the 1980s and 1990s.

¹⁰⁹ Cordova, “¿Nos ahogará?”

¹¹⁰ “Ofrece el ‘Grupo de los 100’ su Colaboración al Regente del DF,” *El Excelsior*, February 8, 1986, clipping in L0.20.37, Contaminación Ambiental, México, Lucha Contra la Contaminación, 1970–1986, AE, BMLT.

¹¹¹ See also Carlos A. Medina, “No hay Capacidad ni Deseo Oficial para Combatir la Contaminación,” June 8, 1985, clipping in L0.20.37, Contaminación Ambiental, México, Lucha Contra la Contaminación, 1970–1986, AE, BMLT.

Air Pollution in the Political and Popular Conscious

The last third of the twentieth century in Mexico City produced two fundamental tensions with regard to the environment: at the same time that this era bore witness to the acceleration of air pollution into an environmental disaster, it also ushered in strict anti-pollution laws and atmospheric governance. Air pollution had become a “constant preoccupation of the citizenry, non-governmental groups, and the authorities, [a] preoccupation that spoke to the growing conscientization of society...” according to a 1992 pamphlet authored by the Metropolitan Commission for the Prevention and Control of Environmental Contamination in the Valley of Mexico.¹¹² Indeed, environmental legislation over the last third of the twentieth century demonstrated as much. Beginning with the administration of President Echeverría in the 1970s, laws, programs, and public-facing initiatives illustrated that air pollution had entered political agendas, influenced by the rising global environmentalism that championed sustainable development and natural resource conservation. Legal discourse over the course of multiple sexenios and three national anti-pollution laws produced sophisticated and comprehensive definitions of pollution, signaling hope by the mid-1970s that, in the words of the head of the Sub-Ministry of Environmental Improvement, “opportune prevention” would ensure that “Mexico City will never have a tragedy like the one that occurred in London in 1952, which cost 4,000 lives.”¹¹³ Such sentiments hinged on the recognition that environmental subjects should and would do their part to secure a more ecologically sustainable future—that individuals would “attend to the recommendations” set forth by officials regarding regular vehicle maintenance or installation of emission-control devices on their cars or business owners would invest in anti-contaminating equipment, for example.¹¹⁴ In the battle for pollution control, then, the state ascribed roles for its citizens. Politics placed much emphasis on conscientization, or raising

¹¹² Created in 1992 during the presidency of Salinas de Gortari, the Commission’s purpose was to “define and coordinate policy, programs, and projects, as well as verify the execution of such actions” to minimize environmental pollution. See “Acuerdo por el que se crea la Comisión para la Prevención y Control de la Contaminación Ambiental en la Zona Metropolitana del Valle de México,” *Diario Oficial de la Federación*, August 1, 1992.

¹¹³ “Diez Millones, Producto de Multas a Industrias que no Evitan la Contaminación, Para Beneficio de los Niños de las Zonas Afectadas,” *El Excelsior*, February 14, 1975, clipping in L6.04.01, Contaminación Ambiental, Campaña, México, Lucha Contra la Contaminación, 1971–1991, AE, BMLT.

¹¹⁴ “Diez Millones.”

awareness of pollution in the capital, and implemented a variety of measures—from environmentally-oriented primary school forums and “permanent public education,” to neighborhood surveillance, to environment police brigades—to elevate both the citizenry’s consciousness and conscience.¹¹⁵ Official discourse painted citizens as perpetual students of the state, and when air pollution got worse instead of better over the 1980s and early 1990s, the state placed blame on its environmental subjects, who, they believed, had not cared to learn or learned to care, to explain the lack of progress in bringing back the clear air that impressed travelers from centuries past.

Popular cultural works indicated, however, that residents were indeed sensitized to air pollution. As an *El Universal* reporter put it in 1975, “[a]ny human individual with a little bit of imagination can see the monstrous problem we face in relation to ecology and the terrible difficulties of combatting [its deterioration].”¹¹⁶ Such cultural productions relied on corporeal and full-bodied experiences, culled from daily life in the city, to communicate their knowledge about air pollution. Some residents, as their recollections reveal, believed that the pollution was enough to make Mexico City “explode,” and that twenty percent of the entire nation—residents of “Makesicko City,” as dubbed by renowned novelist Carlos Fuentes in a popular 1987 novel—was effectively living out a death wish.¹¹⁷ Paying attention to the everyday works of people like Homero Ardijs, José Palomo Fuentes, and others reveals that air pollution was not just an annoying occurrence; air pollution had actually become disastrous and a public health emergency by the close of the twentieth century. And although popular organization indeed mobilized owing to the efforts of activist-minded individuals, and it even led to some immediate yet temporary relief, environmentally-oriented, air-centric, and affective discourses produced by residents

¹¹⁵ Quintero, “La subsecretaría.”

¹¹⁶ “Campaña Contra el Smog.”

¹¹⁷ Etra Oralia Herrera, “Antes que estalle el DF: Sólo industrias no contaminantes habrán de establecerse en el Valle,” *El Día*, November 5, 1980, clipping in L6.04.01, Contaminación Ambiental, Campaña, México, Lucha Contra la Contaminación, 1971–1991, AE, BMLT. Carlos Fuentes, *Cristóbal nonato* (México, DF: Fondo de Cultura Económica, 1987). In 1990, 15 million people lived in the Mexico City Metropolitan Area. The population of the Federal District was 8.2 million at this time. The total national population in 1990 was 81 million. See Dirección General de Estadística, *XI Censo General de la Población y Vivienda*, 1990.

frequently acknowledged the very human frustrations at the heart of the lived experience of late-twentieth-century Mexico City.

Mexico's capital had entered the twentieth century as the “most transparent region” in the world and exited it as the “most polluted,” two labels assigned to the city by outsiders—nineteenth-century naturalist Alexander von Humboldt and the United Nations, respectively. Yet, as the Epilogue shows, both of these monikers live on in the minds and hearts of twenty-first century residents of Mexico's capital, attesting to the continued importance of air in the memory and history of Mexico City.

Epilogue

Affective Atmospheric Encounters¹: Sensing and Making Sense of Air in the Twenty-First-Century City

How do we know what we know about the air we breathe? Globally, weather information networks transmit a wealth of information upon which we rely. Technology and science broadcast the temperature and UV Index, they monitor allergen counts, and they even stream real-time pollution data in ways that intend to make it easier for us to understand and weigh these otherwise invisible risks. However, there are still other, more direct ways in which we become aware of the imperceptible. As this dissertation has suggested, non-expert, corporeal entanglements with our surroundings provide clues that sometimes corroborate, sometimes contradict, official knowledge. For some, aching bones may portend rain or a storm on the horizon, whether or not the forecast has called for such a weather event. For others, a sore throat or runny eyes may indicate the presence of an allergenic substance floating discreetly in the sky, and checking a website or phone application serves only to confirm what we may have already gleaned through our senses. On the opposite end of this spectrum lies bodily unknowability and unreliability. It is entirely true that environmental dangers frequently escape detection—a sunny, ostensibly clear day can conceal dangerous air quality levels, for example. Our understanding of the impalpable substance that is the air and our alertness to problems with our air supply, whether conditioned by science or the body, is thus far more complex than we may recognize.

This epilogue delivers the study to the twenty-first century in its assertion that Mexico City remains a particularly illuminating setting for the examination of the inherent complexities undergirding atmospheric encounters in the present. Through a reflective analysis of air-centric dialogues in and about contemporary Mexico City, where pollution has become central to on-the-ground understandings of the

¹ For a review of the meaning of affect, its use as a method for accessing the quotidian experiences of the environment, and the necessity and legitimacy of environmental history scholarship grounded in emotional rather than purely intellectual or cerebral knowledge, see Walsh, *Virtuous Waters*, xi–xii, 14.

urban experience in the new millennium, this epilogue illustrates that past and present residents of Mexico City think and talk about the air with as much intrigue, concern, and sophistication as the historical actors featured throughout this investigation. Air, as this dissertation has demonstrated, bookends the environmental history of Mexico City. As a whole, this study has ventured to show that as the city passed through different phases of development and rebirth, characters as varied as the Spanish conquistadors of the 1500s; the everyday explorers of the nineteenth century; and twentieth-century tourism promoters, scientists, politicians, and environmental activists displayed historically-specific interests in the air of the city. Far from being a lifeless void or merely a pretty backdrop, the sky was alive with meaning for the figures presented in this dissertation. Throughout the different historical periods covered in this study, individuals scrutinized the atmosphere; told stories about it, politicizing and advertising it in the process; they lamented the disappearance of scenic vistas due to ambient pollution; they fought for cleaner air; and frequently made references to the atmosphere in conversations about modernity. Air, a “largely invisible socio-natural artifact,” as recently defined by geographer Anneleen Kenis, thus helped people construct place meaning and communicate the human experience of a landscape.²

Whether cast as the most transparent city in the world or the most polluted, this environmental history of air reveals that an intangible natural element was central to how Mexico City was presented to and perceived by different audiences. While this epilogue brings this expedition into Mexico City’s atmospheric history to a close, it also makes the case, through its analysis of a number of affective atmospheric encounters, that air-centric narratives continue to occupy important discursive spaces in the quotidian experience of present-day Mexico City. Furthermore, as the grave realities of climate change take clearer form, intensifying and rendering more frequent nature-induced disasters like Mexico City’s 2019 *semana gris* (“grey week,” an air pollution emergency incited by seasonal forest fires), and as humanity continues to reexamine its relationship to nature in response, conversations about the air—its

² I borrow this particularly illuminating description of air from Kenis, whose analysis of urban air pollution argues that discourse is essential to the way that air is understood in the environmental advocacy context. See Anneleen Kenis, “Science, citizens, and air pollution,” 282–283.

pollution, restoration, and conservation—will become ever more integral to the human-environment experience, not only in Mexico City, but in places and spaces around the world.³

Air in the Everyday: Scenes and Senses

On a warm May morning in 2018, I landed at the Benito Juárez International Airport in Mexico City to resume archival research on the historical interpretations of the valley's air pollution. The view from the window of the airplane looking down at the valley informed me that pollution was present, and it was strong. From my perspective, up in the clouds, the pollution appeared as a thick, grey layer, but above it, a clear, blue sky. Upon deplaning and leaving the airport, I looked up at the sky; it was not the ominous grey I had seen in the plane. Instead it was colorless and not particularly striking or threatening. On the ground, the buzz from travelers rushing to connect to the next leg of their voyages or to leave the transient space of the airport altogether was contagious even though I was otherwise on schedule for a punctual arrival. Or perhaps the haste was innate, I realized, as I allowed the blur of pink taxicabs, crisscrossing highways, and the menagerie of buildings to wash over me while en route to the city center. The driver slowed as we met the congestion demarcating the entrance into the bustling Centro Histórico, the Historic District, the center of Mexico City, heir to the pre-Hispanic Tenochtitlán. The urban surroundings came into focus: an array of colorful traffic signals, masses of moving pedestrians, skyscrapers, patches of green, *eloteros* (street vendors), policemen blowing whistles and directing vehicles through intersections, fleeting fragments of conversations taking place at stop lights, smells of food and hot asphalt forcibly mixed into one, and a cautionary message displayed prominently on a large, LED road sign. Overlooking a bevy of cars, the announcement read:

³ In May of 2019, wildfires raged across Mexico, destroying large parts of Guerrero, Chihuahua, Oaxaca, and the State of México, but affecting as many as fourteen other states. At one point, fires covered more than half of the country's land area. Conflagrations also burned in Mexico City, a megalopolis with high population density, millions of cars, a concentration of industry, and a history of air pollution problems. Not surprisingly, smoke from the blazes created a disaster within a disaster, as it percolated with the emanations of other pollution-producing sources to yield a mass of unbreathable air. Memorialized as *la semana gris* (the grey week), for some, the environmental emergency conjured up memories of 1992, when Mexico's capital made international headlines—labeled the “most polluted city in the world” by the UN. See Anna Portella, “México superó la ‘semana gris’ de la contaminación, pero ¿por cuánto tiempo?” *Público* September 6, 2019.

*AVISO DE ALTOS NIVELES DE CONTAMINACIÓN AMBIENTAL ATMOSFÉRICA
POR PARTÍCULAS...*

*[WARNING: HIGH LEVELS OF ATMOSPHERIC PARTICULATE MATTER
POLLUTION]*

This outwardly urgent notification, affixed onto a mundane placard—one of the many pieces of technology making up the city’s multilayered built environment—looked inconspicuous, as if it belonged, much like the sky as seen from the ground up. The sign’s message was not particularly surprising, in part because I had been afforded an aerial perspective from the plane. Nonetheless, the situation appeared to come across as banal even to those on the ground. As it silently flashed above those carrying on with their day, I realized the sign, and the environmental emergency it pointed to, indeed was banal. Since March 2016, the issuance of the city’s first ozone-related air quality alert in just over ten years, such material reminders of the latent dangers of breathing the air have become commonplace, and signs like the one I encountered that May morning routinely barrage the residents of Mexico City who are seemingly immune to them.⁴ Despite its mundaneness, the sign was also more than an arbitrary device sporting a well-worn message; it was a valuable intermediary between humans and the imperceptible changes taking place in the atmosphere, a tool, much like the IMECA discussed in Chapter 4, that condensed formulas, raw data, measurements, and readings into nine simple words that city dwellers could utilize as a resource to understand and individually weigh the risks of being outdoors. This episode left me wondering about the ways in which both the natural environment and the modern mechanisms created for the transmission of technical, time-sensitive environmental information can fail at communicating the severity of visible and invisible risks facing the public, and, moreover, of the bodily incapacity to recognize such hazards. As I reached my apartment, an exchange with my landlord put these thoughts into perspective.

⁴ “Mexico City Declares First Air Pollution Alert in 11 Years,” *Associated Press*, March 15, 2016. Specifically, this alert referenced ground-level ozone, a colorless gas, or “secondary pollutant,” created by sunlight effectively cooking primary pollutants emitted by automobile or industrial sources. Primary pollutants include particulate matter, sulfur dioxides, carbon monoxides, and nitrogen oxides, and were not referenced by the report cited above. In response to this alert, the government put in place more stringent measures (akin to those of the late 1980s and early 1990s) to curb automobile use and reduce the high ozone levels.

Hugo and his dog, who was waiting obediently by his side, greeted me upon exiting the cab. We exchanged pleasantries and he inquired about my project. “Don’t worry,” he said after learning about my research interests, “the air has come a long way here and is safe to breathe. You will see, it is not that bad.”⁵ I looked up at the ostensibly blue sky, reminded of my airplane view. Yet Hugo’s reassurances provided insight into the myriad everyday meanings assigned to air pollution in a place where polluted conditions constitute the norm. He did not describe the air as particularly dangerous or unhealthy, despite the alert in effect, but he was also not unaware of or indifferent to the contemporary history of the city’s struggles with atmospheric pollution. Instead, Hugo’s remarks demonstrated a nuanced, subjective, and emplaced understanding of Mexico City’s air culled from years of fresh-air experiences such as daily walks with his dog. These two interactions—one with an inanimate object, a technological “fix,”⁶ and the other with a living, breathing inhabitant of the city—unveiled not only the unspoken or internalized local environmental knowledges, but also how attention to the affective can help bridge an epistemological divide in the study of the environmentally intangible.



Two years later, through discussion with a colleague, I learned more about the ways in which air and air pollution are rendered visible on a daily basis in Mexico City. On January 17, 2020, Diana and I met virtually through Skype to continue a conversation we had struck up in November of the previous year in Austin, Texas, when I had visited the University of Texas to present my work. Diana, who also studies the history of Mexico, met with me over lunch, and we spent the next hour talking about air and cochineal, an insect commonly used for its red dye and also the focus of her research.⁷ During our meal, and later our interview, she told me about her time in Mexico City, studying biology at UNAM from 2010 to 2015, and working at the herbarium there. She had already mentioned over lunch in November that that Mexico City’s air pollution had left a lasting impression, coloring her memories and experience of the

⁵ Hugo Mora, in discussion with author, May 2018.

⁶ For more on the uses of technology as a fix for everyday problems, see Rosner, *The Technological Fix*.

⁷ For more on Diana’s research, see Diana Heredia-López, “Los conquistadores invisibles,” *Letras Libres*, December 1, 2019, accessed on December 15, 2019, <https://www.letraslibres.com/mexico/revista/los-conquistadores-invisibles>.

city. When I asked her to elaborate in January, I sought to gain more insight about her first recollection of pollution in the city, expecting some kind of a revelatory atmospheric encounter during one of her first days there. However, I was surprised to hear that her first memory of air pollution came not from her time as a resident of the city, but as a child in the 1990s, living in her native Guadalajara. In particular, she remembered hearing about IMECA. “Hearing about IMECA [meant] hearing about the smog in Mexico City,” she said.⁸ While not a technological fix per se, the IMECA, performed important translation work to help identify latent risks, much like the sign that greeted me that May morning in 2018. My conversation with Diana revealed that the IMECA works in ways that are not always obvious, and that, like the sign, environmental technologies do not always make the environment easier to understand.

As someone who was relatively young when the IMECA was first implemented in Mexico, for Diana, it was not the precise measurements of the IMECA that alerted her to air quality conditions, but rather the vocabulary that designated air quality as “good” or “bad.” At the time of our interview in 2020, she acknowledged that she was not exactly confident in her understanding of IMECA—indeed, Diana is of the majority who have trouble decoding air quality measurements, as recent articles demonstrate—as compared to being able to read and understand weather information like temperature and humidity.⁹ Part of the reason for her confusion, she added, was because it was not readily apparent which forms of pollution the IMECA measured and how the numbers correlated to what one could perceive through the senses. One could feel heat and humidity, two examples that Diana gave, but air pollution was more elusive. But Diana turned out to be quite knowledgeable about pollution; this much became evident as our conversation shifted away from the IMECA and towards the body as barometer.

While Diana did not recall any major air pollution episodes during her time in Mexico City—she admitted that when she lived there, she “just took it that the air was bad”—most of her more unpleasant atmospheric encounters came from public transit use. Some also occurred simply from stepping outside

⁸ Diana Heredia-López, Interview by author, January 17, 2020.

⁹ Like Diana, a curious Medford, Oregon, resident posed a similar question to her local newspaper. She asks, “We know that an AQI (Air Quality Index) value under 50 is healthy and over 300 is hazardous, but what do those numbers mean?” The answer, as the response indicated, is complicated and “the actual data is not the easiest to comprehend.” See “What do Air Quality Index numbers mean?” *Mail Tribune*, September 10, 2017.

of her apartment every day and smelling the air, “a combination of smog and trash,” or upon returning to Mexico City from Guadalajara, where “you could smell it [the pollution] in the airport a little bit,” but air pollution took its most obvious and offensive form while being mobile around the city. During her time at UNAM, Diana was also a private vehicle user, which is what made pollution more visible to her when she rode the metro. “When you are a car user, you don’t really realize [the pollution]; you might see it, but you don’t feel it...as a car user you consider the air quality through [the mandatory inspections]” that citizens are required to complete every six months or risk a steep fine, as Diana herself once experienced. Using a car, her interview demonstrated, created a very specific set of air-centric knowledge than did frequenting collective transport or walking around the city. As Diana explained to me,

If you take the subway, because you are crowded...sometimes it just feels nice to be out, you feel like...it’s just so nice to be out! But sometimes you get out [of the station] and you have all the gases from the cars...I think also if you use the bus, just waiting for the bus you get all of the air that the motor vehicles are emitting. When you walk [around the city], you also feel it...when you jaywalk [and] go through the cars, so you definitely get a lot of that when you use public transportation and walk.

Feeling and smelling the dirty air clued Diana in to the pollution that she already knew existed. Traveling around the city on foot was unpleasant principally because it brought her body closer to sources of pollution—cars and their emissions and odors. To counteract some of these more unfavorable urban atmospheric experiences, Diana frequented Los Dinamos, an ecological park in Magdalena Contreras, or other green areas such as Bosque de Tlalpan, believing that “certain types of landscapes” have better air, but that even parks and forested areas did not “guarantee” clean air. “It’s tricky” to perceive air pollution, Diana concluded, recalling a time when a peer informed her that Bosque de Tlalpan was actually rumored to have high lead pollution, an invisible danger that her body had not been able to detect. To Diana, other parts of the city, like areas in the periphery, however, *looked* as if they would have more pollution, due to the general absence of green areas. Sight was thus another sense that told Diana much about the air. Whereas smell and touch (the feeling of the air that Diana elucidates above) accompanied negative atmospheric experiences, “seeing the sky clear up or being able to look at the mountains had a feel-good factor.” Sensory information, more than technology, gave substance to many of Diana’s atmospheric encounters, even as she recognized that the body could not always be trusted.

My interview with Diana complemented my conversation with Hugo, my interactions with the environmental technology of the city, and my own corporeal assessments of the atmosphere. Such intermixing is indeed messy and complicated to parse out—atmospheric knowledges are bound by time, place, the body, and the politics of the day. Nevertheless, doing so is important in the study of elusive substances like air because too often discussions of “knowing” our air and its pollution are polarizing, with cerebral or expert knowledge pit against subjective and sensory information.



On November 22, 2019, a small subset of the Spanish-speaking Twitter realm was abuzz when user Dahlia de la Cerda, an author and poet-activist from Aguascalientes, posted frustratingly about her visit to Mexico City. “Fucking Mexico City,” the tweet read, “I have already vomited three times, had two panic attacks, and my head hurts since yesterday. How do you all live with this altitude, with this pollution, and with so much traffic?” she asked.¹⁰ The question, obviously rhetorical, garnered 150 responses from residents, former residents, and non-residents alike over the next two days. These replies took on tones that ranged from humorous, understanding, and concerned to angry, patriotic, and apathetic. Some sympathetically shared their own symptoms—gastritis, stress, nosebleeds, eye irritations, and headaches—while others similarly passed judgements from afar: “You get used to it,” one person wrote, “and it is normal for them [Mexico City residents]. Now that I live in Aguascalientes, I have the same opinion as you,” or, as another proposed, “They [residents] become resistant,” powered by the smog itself which one suggested “was their oxygen.”¹¹ One wrote in wondering the same thing: “How do they not get depressed with so much gray? In many areas of the city, the *periféricos* [two-story beltways] do

¹⁰ Dahlia de la Cerda (@DahliaBat), “Pinche Ciudad de México,” Twitter, November 22, 2019, 5:12 p.m., <https://twitter.com/DahliaBat/status/1198016321155477509>, accessed November 26, 2019.

¹¹ “The same thing happens to me,” wrote Josué Arizmendi Guttierrez, “I have a headache every time that I am there. P.S.,” he added, “you will see when you clean your nostrils when you return home, the tissue will look like a vacuum filter,” see Josué Arizmendi Guttierrez (@Joargu), reply to Dahlia de la Cerda, Twitter, November 22, 2019; another wrote in sympathetically: “Right? I was there on Wednesday and Thursday and I urgently wanted to return to my ranch. My eyes were tearing up from the pollution, it was hot, and I was so sick of the traffic...” Laura Bec (@laurabecmx), reply to Dahlia de la Cerda, Twitter, November 22, 2019; “I was there for three days, and for three days I had nosebleeds,” commiserated another Twitter user, see Beba (@soycorashe), reply to Dahlia de la Cerda, Twitter, November 22, 2019; Anaid (@Anaidentis), reply to Dahlia de la Cerda, Twitter, November 22, 2019; and (@kahoo), reply to Dahlia de la Cerda, Twitter, November 23, 2019.

not allow the sunlight to permeate the streets and they always remain enshrouded [in pollution].”¹² Some were heavy-handed in the application of sarcasm to express agreement with de la Cerda’s qualms. For example, one commenter’s one-word reply, “Tacostumbas,” a reference to a popular taquería in Mexico, echoed another’s insight that “[w]e consume tacos. It’s practically our fuel.”¹³ A select few proffered practical advice, such as one person’s suggestion to rely, “as much as possible,” on an “[e]lectric bike and smog mask” to get around the city. Another prescribed Dramamine while still another person, complementing this line of thinking, recommended “a lot of water to help with the altitude and at least one day of alcohol avoidance.” One simply attached a link to a wikiHow article titled “How to adapt to life in the city if you come from a small town.”¹⁴

The variety in responses, from those suggesting individual measures that de la Cerda could take to manage her side effects from day to day—taking pills, riding a bike, and even regularly consuming tacos—to those that suggested de la Cerda learn to live with the pollution because it was a prevalent feature of the urban landscape, revealed not only the different societal attitudes toward Mexico City’s pollution, but the sheer cognizance of pollution’s effect on everyday life. Air pollution, as these voices make evident, could rule one’s life if one did not learn ways of coping. Indeed, a large percentage of people chimed that the best way to endure the city was to simply adapt, and some claimed that surviving, rather than retaining a quality of life, was actually the main priority for those residing in Mexico City.

¹² Johanna Ackerman (@JohanaAckerman), reply to Dahlia de la Cerda, Twitter, November 23, 2019.

¹³ Food, drink, and supplements or herbs as fuel for day-to-day survival was a common theme in the thread. Another replied with: “Three simple words: taquitos del pastor,” and one claimed that “[t]he secret is to have tamale cake or chilaquiles cake, or some other food that should not go on a cake, [because] it gives you superpowers.” Another commenter thanked “quesadillas without cheese,” and still another answered that “a lot of CBD” helped alleviate the effects mentioned by the original poster, see Carolina Laifas (@caroLaifas), reply to Dahlia de la Cerda, Twitter, November 22, 2019; Caro Salazar (@caroline2890), reply to Dahlia de la Cerda, Twitter, November 23, 2019; Carítzimo de París (@Uzviken), reply to Dahlia de la Cerda, Twitter, November 23, 2019; Rulo Rulez ZuMe (@Rulorulez), reply to Dahlia de la Cerda, Twitter, November 23, 2019; Andrea Franco (@andiecaramel), reply to Dahlia de la Cerda, Twitter, November 23, 2019; and Songmess (@songmessmusic), reply to Dahlia de la Cerda, Twitter, November 23, 2019.

¹⁴ Héctor Eduardo (@hellocodex), reply to Dahlia de la Cerda, Twitter, November 23, 2019; Dany McFly (@RealDanyMcFly), reply to Dahlia de la Cerda, Twitter, November 23, 2019; and Gerardo Leal (@gerardoleal), reply to Dahlia de la Cerda, Twitter, November 23, 2019; Antoni Moreno (@AntonioVldz13), reply to Dahlia de la Cerda, Twitter, November 23, 2019; and Michel L. Chaparro (@mich_UNAM), reply to Dahlia de la Cerda, Twitter, November 23, 2019; for referenced article see wikiHow.com, “Cómo adaptarse a la vida de la ciudad si vienes de un pueblo pequeño,” available from <https://es.m.wikihow.com/adaptarse-a-la-vida-de-la-ciudad-si-vienes-de-un-pueblo-pequeño?amp=1>, accessed March 2, 2020.

“Few resist,” attested a user called Estela Meraz.¹⁵ However, “...only the strongest species survive,” cautioned one user, citing Charles Darwin’s Law of Evolution, which one user refuted by relating a story about her father, who left Mexico City and, as a result, lived longer than his friends who had recently succumbed to heart attacks.¹⁶

Through sarcasm, some also recognized the physical toll that living in a polluted environment could take on a person, though not all responses emphasized declining health. When one commenter jabbed that “[w]e [residents of Mexico City] have stopped being human long ago and now are only vampires,” he hit at a popular theme in the thread. Evolving to the level of vampire, or devolving to that of cockroach, as one explained when he wrote that Mexico City residents “are the cockroaches of humanity...after the nuclear holocaust only us *chilangos* [residents of Mexico City] will remain,” was often spun in a positive light.¹⁷ Fictional or real, both entities have unique, socially-accepted relationships with death—vampires are the undead while cockroaches routinely survive or escape death. Conjuring up fantasy characters or post-human organisms, then, spoke to the resilience of Mexico City residents. “Not everyone is born capable enough to live in this city,” as one explained, “only the chosen ones.” The most popular comment of the thread fell into this category of responses. 244 people ‘liked’ Andrea P.D.’s reply that “Mexico City is not for the weak. Here we walk like trees: dead inside but standing.”¹⁸ Mexico City’s atmosphere had taken away the humanity of its residents, but, in the minds of some respondents,

¹⁵ Seluna (@darkmoonselina), reply to Dahlia de la Cerda, Twitter, November 22, 2019; “One doesn’t live, one survives,” wrote a user named Estrella Gonzalez (@Estrell72894371), reply to Dahlia de la Cerda, Twitter, November 23, 2019; see also Hugo Cabrera’s response that “You don’t live! You let life pass you by,” Hugo Cabrera Huaca (@huacamx), reply to Dahlia de la Cerda, Twitter, November 23, 2019; Estela Meraz (@Anfolito), reply to Dahlia de la Cerda, Twitter, November 23, 2019.

¹⁶ Adrián (@Adrin78680779), reply to Dahlia de la Cerda, Twitter, November 23, 2019; Anaid Melendez (@dymaraway), reply to Dahlia de la Cerda, Twitter, November 24, 2019.

¹⁷ Zsobotnick (@zsabot), reply to Dahlia de la Cerda, Twitter, November 23, 2019. See also Gus Proal’s reply: “We are immortal...level cockroach,” Gus Proal (@elmaistrogus), reply to Dahlia de la Cerda, Twitter, November 23, 2019; Juan Carlos Badillo (@badillomartinez), reply to Dahlia de la Cerda, Twitter, November 23, 2019; another wrote in that “We are born with lead in our lungs...there’s no other way,” see Carolain (@CalorinaSS), reply to Dahlia de la Cerda, Twitter, November 23, 2019.

¹⁸ Carolina (@Figomon), reply to Dahlia de la Cerda, Twitter, November 22, 2019 and Juan Antonio C. (@Juanosopardo49), reply to Dahlia de la Cerda, Twitter, November 23, 2019; Andrea P.D. (@corderaAPD), reply to Dahlia de la Cerda, Twitter, November 22, 2019.

pollution had replaced human frailty with a larger-than-life strength and will to stay alive in order to survive the urban environment.

That people willingly endure living in the city was simply out of devotion to it, as some commenters contended. “One survives,” wrote one resident, explaining that “[w]e are adapting slowly, but in reality, it is a forced adjustment, especially for those of us who come from the ‘provinces.’ But with everything, ‘Defecito’ [an endearing term for the Distrito Federal] is loved.”¹⁹ People with comparable replies advised de la Cerda that “Mexico City is so much more than its pollution,” and that “[a]fter a while, you get used to it. Stay a year and you will see,” wrote a Twitter user by the name of Alfredo Ruiz-Meza.²⁰ Another expressed similar sentiments, eloquently rationalizing that:

I suppose that the majority of us have a love/hate relationship with the city, but then everything is also how you take it. I do not feel the altitude, I was born here. The pollution is worse in Monterrey or Nuevo León, the traffic is an opportunity to listen to podcasts or music. But I love its colors, I love to see it rain and the lights on the pavement. I love having everything readily available and close. And I understand why my husband preferred to stay here than in Monterrey. I love busy life. I hate my government, but I love my city. You want to go to the movies? 15 minutes. You want Russian, German, whatever else food, it’s there. You want to go out? To a preppy place, dark place, punk place? It’s there. Don’t want to go to the store? Order Rappi or Uber eats. Want to go to the market? Pulque? Flowers? Whatever it is, you will find it.²¹

“Strength, evolution, and love, for this wonder of a chaotic city—no other in the world has everything and a little more,” elucidated “Una chica enamorada,” who added that “I went away for a couple of years and I missed the city a lot.”²²

While de la Cerda’s tweet resonated with many, affection for city manifested in other, more critical ways: love it or leave it, a select few wrote back. Espousing a protectionist attitude toward the city, a Twitter user explained that de la Cerda’s question was “[e]asy” to answer “because you are not from here.” He continued, “This question is addressed to people that were born here and grew up in the city, [but] what will they tell you? That they had not given thought to the altitude, or that the pollution is

¹⁹ @Lili_Anaz, reply to Dahlia de la Cerda, Twitter, November 22, 2019.

²⁰ Sol Rodríguez, (@solerodquin), reply to Dahlia de la Cerda, Twitter, November 23, 2019; Alfredo Ruiz-Meza (@meza44), reply to Dahlia de la Cerda, Twitter, November 23, 2019.

²¹ Triela Rhyfel (@TrielaExen), reply to Dahlia de la Cerda, Twitter, November 23, 2019; another similarly responded with “Well...for the beauty, the extravagance, the multiculturalism, for all the attractions it has,” see Anushka (@hillelagordimer), reply to Dahlia de la Cerda, Twitter, November 23, 2019.

²² Una chica enamorada (@anitaprecieux), reply to Dahlia de la Cerda, Twitter, November 22, 2019.

something ‘natural,’ and that traffic is part of transportation. Weak human,” he concluded.²³ De la Cerda’s tweet had clearly struck a nerve with some who chastised her, diminishing her very human, bodily reactions to the city: “Nothing of ‘lousy Mexico City,’ if you do not like it, do not come. Everyone is welcome here, but they should not come to offend, nor would you like them to offend your town, even it was in the tone of a ‘joke.’”²⁴ Another acknowledged more calmly that Mexico City was “...the toxic relationship that I love [anyway],” and one connected Mexico City’s contemporary appeal as a legacy of its rich pre-Hispanic past: “Well, it was here that one day an eagle landed to devour a delicious snake on a cactus and we all want to live in the surroundings of the Great Tenochtitlán, even as it is [now].”²⁵



These various scenes and conversations highlighted here reveal that air is very much essential to the lived experience of the city in the present moment. The narrators and commenters above display a uniquely multidimensional (bodily and cerebral), sophisticated, and at times historically-informed understanding of air’s centrality to the experience of Mexico City. For better or for worse, air is part of daily dialogues—on Twitter, among residents, and ex-residents reminiscing about their time in the city many years later.

Air in History and as Memory in Mexico City

Why, amid the pervasive, everyday reality of pollution in Mexico City, do Mexicans remember and regularly invoke the era of transparent air? Monumentos de México, a popular Twitter account that presents daily snippets of easily-digestible content on Mexican history to its thousands of followers, has

²³ Ixzian Dhra (@ixziandra), reply to Dahlia de la Cerda, Twitter, November 24, 2019. This user was indeed correct, as one person’s response validated this assertion: “I don’t know. I was born here and it is a part of life. A bit sad, yes, but I don’t imagine living elsewhere. I think that you get used to the chaos. Oh, and I live in one of the highest points of the city,” see Nerisa Yue (@nerisayue), reply to Dahlia de la Cerda, Twitter, November 23, 2019.

²⁴ Jorge A. Ramírez-Suárez (@Jorge_Ramirez_S), reply to Dahlia de la Cerda, Twitter, November 23, 2019; others also suggested that de la Cerda return to her town, see Inés Ibarrola Sauce (@Seni_Larrola), reply to Dahlia de la Cerda, Twitter, November 23, 2019; along the same lines twitter user Eddgarrido wrote “If you don’t like it you can leave. That is why I don’t go to Mexico City,” see Eddgarrido (@Jedgg07), reply to Dahlia de la Cerda, Twitter, November 23, 2019.

²⁵ Valuriasisi (@valuriasi), reply to Dahlia de la Cerda, Twitter, November 22, 2019; Is Ma (@ismapapeles), reply to Dahlia de la Cerda, Twitter, November 23, 2019.

done much to keep the memory and relevance of Mexico City's atmospheric allure alive. On September 29, 2019, the owner of the account posted a video—undated but likely from the mid-twentieth century—of the National Palace. As the camera slowly follows the length of the elongated building, a serene and impressively beautiful skyscape competes with the foregrounded physical elements for the viewer's attention. A deep blue sky dotted with puffy, white clouds encases the green-tinged mountains that cleave the atmosphere and the man-made structures at the base of the frame. This was, as Monumentos de México, wrote, "[o]ur city of Mexico when it was 'The region of most transparent air.'"²⁶

A similar post graced the Monumentos de México Twitter feed on May 6, 2020: an aerial image of downtown Mexico City smattered with skyscrapers, concrete, and cars, a scene that is juxtaposed with a luscious urban park, the Alameda Central, and verdant patches near the edges of the sprawling city. Once again, a cyan sky—cloudless this time—electrifies the shot. It shares the background with a jagged line of purple mountains, clearly visible in the distance. "The city in the 1970s was very different," read the caption, "it was still the most transparent region..."²⁷ One Twitter user commented that he believed the image to be from "the 1950s or the beginning of the 1960s," as it did not bear a resemblance to his perception of 1970s Mexico City.²⁸ While he pinpointed certain buildings that he believed did not fit the time period, the sky—almost uncharacteristically clear for the 1970s—suggested a Mexico City landscape belonging to an earlier time.

Air was, and will remain, a way to understand Mexico City. This historical study of air pollution has shown that air mediated individual perceptions over time, ascribing both positive and negative experiences of urban space, even as that space was in constant flux. Air was also a subject that interested a wide spectrum of people—from scientists and travelers, tourism boosters and politicians, artists and Twitter users—who participated in the creation of air-centric discourses that reveal much about the urban experience in Mexico City. Air has been used to mark two extremes of Mexico City's broader

²⁶ Monumentos de México (@patrimoniomx), "Nuestra ciudad de México," Twitter, September 29, 2019, 8:06 p.m., <https://twitter.com/patrimoniomx/status/1178476067436281858>, accessed October 2, 2019.

²⁷ Monumentos de México (@patrimoniomx), "La ciudad en los años setenta," Twitter, May 6, 2020, 3:01 p.m., <https://twitter.com/patrimoniomx/status/1258124758257934339/photo/1>, accessed May 6, 2020.

²⁸ Manuel Pillado (@pilladomanuel), reply to Monumentos de México, Twitter, May 6, 2020.

ecological transformation, from salubrious oasis to the most polluted city in the world. But the history of air is not a simple history of decline. As this study makes evident, air-centric discourses are also affective, political, and scientific discourses. They are stories of technological innovation and artistic expression, of progress and failure, of a yearning for an ostensibly more ecologically balanced era, and of a hope for a better future.

Appendix A

Maps

Appendix A-1

Nuremberg Map of Tenochtitlan and the Gulf of Mexico, 1524¹

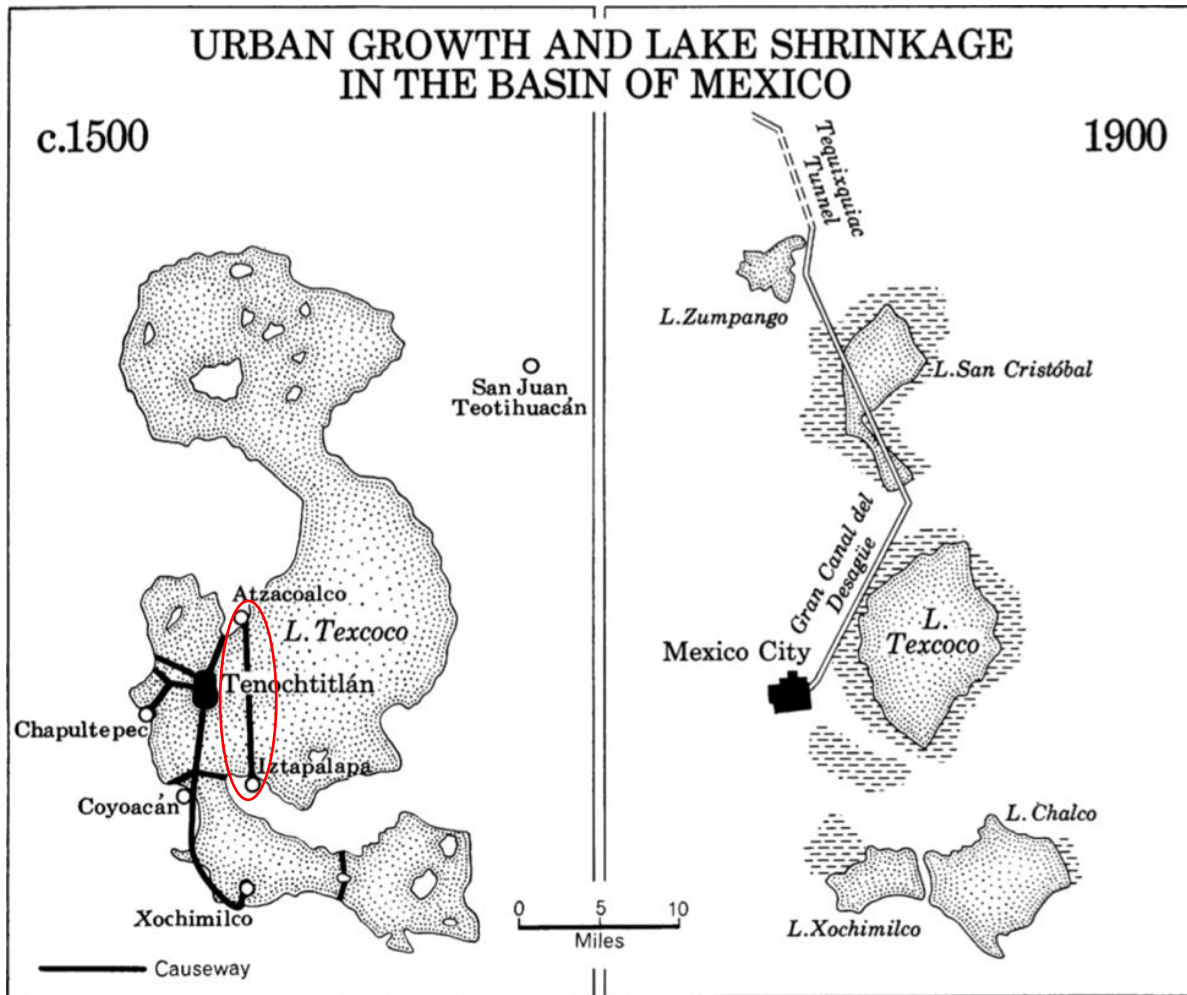


Hernán Cortés, “Map of Tenochtitlan,” From *Praeclara Ferdinādi. Cortesii de Noua maris Oceani Hyspania Narratio Sacratissimo*, Available from: Wikimedia Commons, https://commons.wikimedia.org/wiki/File:Map_of_Tenochtitlan,_1524.jpg (accessed July 9, 2018).

¹ This map of the Mexica capital and the Gulf Coast to the left (with the Yucatán Peninsula portrayed as an island in the gulf) was printed in February, 1524, in Nuremberg by Frederick Peypus Arthimesus; Pietro Savorgnani, trans., alongside the Latin-translated versions of Cortés’s letters to Emperor Charles V. It is recognized as the first image of the New World shown in Europe. Originally appearing as a woodcut map carved by a European craftsman, art historian Barbara Mundy has explained that this rendition was likely based on native knowledge and perhaps even an indigenous map. Versions of this map have been widely republished. For more information, see Barbara Mundy, “Mapping the Aztec Capital: The 1524 Nuremberg Map of Tenochtitlan, Its Sources and Meanings,” *Imago Mundi* 50 (1998): 11–33. As this drawing demonstrates, Tenochtitlan’s waters lacked a natural outlet or a drainage network through which they could be expelled. The technical term for this fluvial landform is an *endorheic* basin, which is naturally closed.

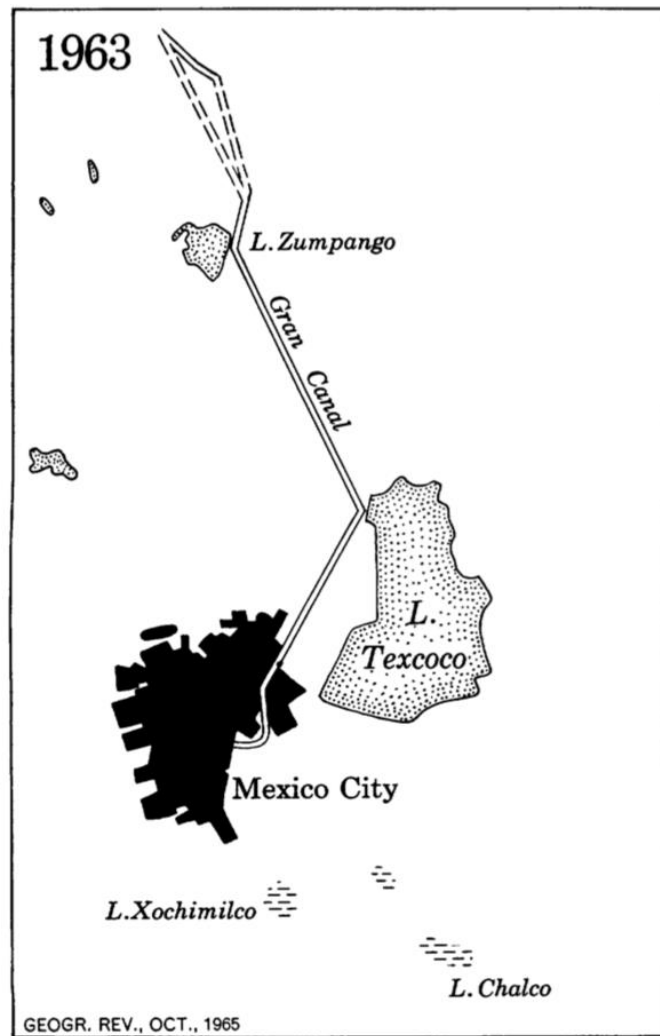
Appendix A-2

Map of Gradual Desiccation in the Basin of Mexico, ~1500–1963¹



¹ Notably, these maps depict both pre-colonial and colonial hydrological engineering projects, including the sixteen-kilometer Dike of Nezahualcóyotl (left image, map modified by author to show dike, demarcated above in red), likely constructed in 1449–1450 to separate the saline, northern lake water from the fresh lake water located to the south, and the Gran Canal del Desagüe (right image), totaling forty-eight kilometers in length, completed in 1900. The Tequixquiac Tunnel extension appears at the northernmost point (see second tunnel below). The following page clearly captures the extent of desiccation by the mid-twentieth century; Lake Texcoco has since reduced further in size. Now a reservoir, Lake Nabor Carrillo, lies in its place. For an elaboration, see Matthew Vitz, “The Lake’s Specter: Water and the History of Mexico City,” *The Metropole: The Official Blog of the Urban History Association*, May 24, 2017, accessed September 24, 2018, <https://themetropole.blog/2017/05/24/the-lakes-specter-water-and-the-history-of-mexico-city/>.

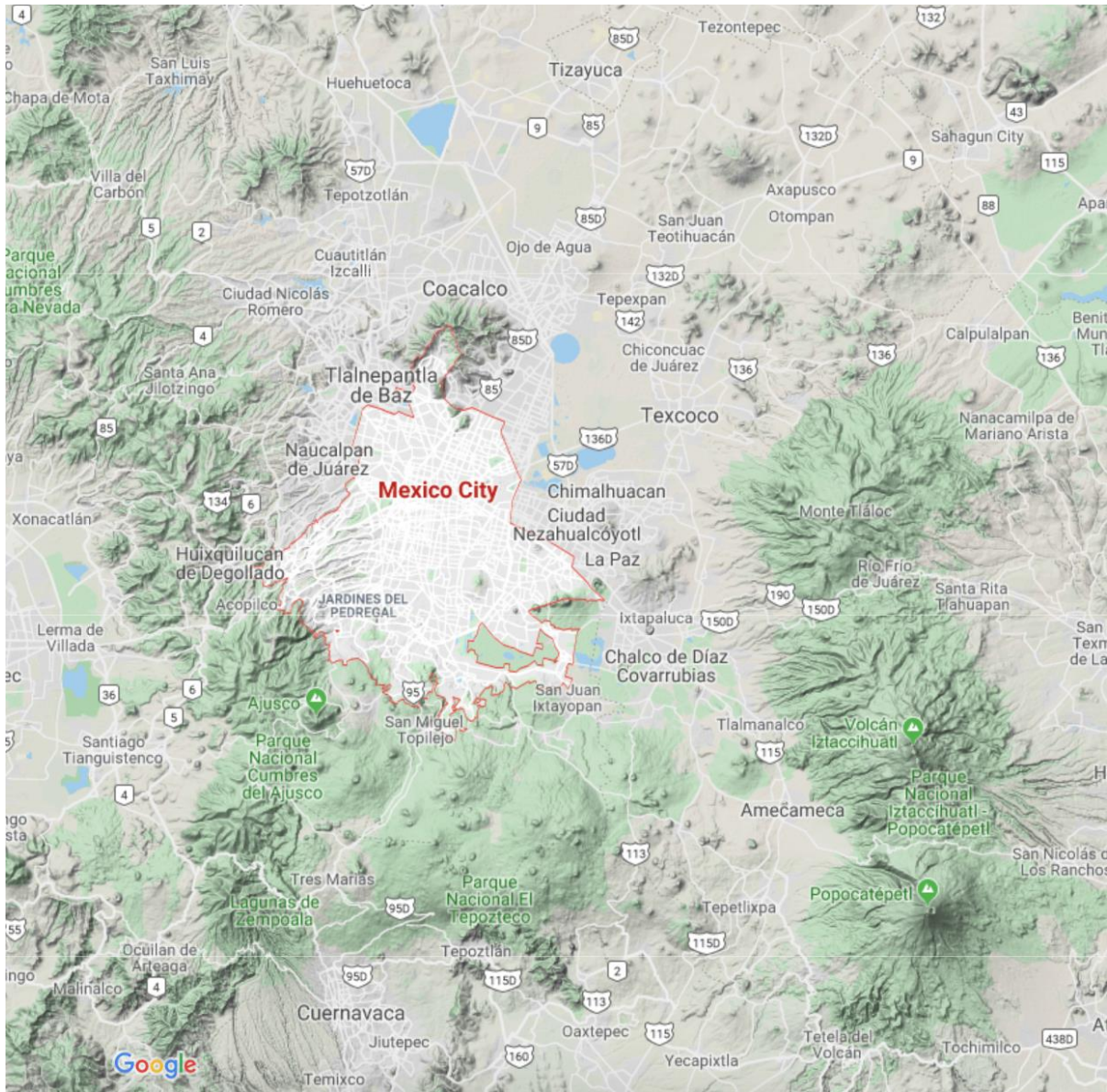
Appendix A-2, cont.



Maps from David J. Fox, "Man-Water Relationships in Metropolitan Mexico," *Geographical Review* 55, no. 4 (October 1965): 524.

Appendix A-3

Topographic Map of Mexico City¹



Google Maps, “Mexico City Topography,” Available from:
<https://www.google.com/maps/place/Mexico+City,+CDMX>, accessed August 20, 2019.

¹ The central Mexican Plateau, which includes Mexico City, is engulfed by the Sierra Madre mountain system: the Sierra Madre Occidental (West), the Sierra Madre Oriental (East), and the Sierra Madre del Sur (South), ranging between 10,000–12,000 feet. The Cordillera Neo-Volcánica, the Trans-Mexican Volcanic Belt or the Sierra Nevada as it is otherwise known, comprises six major volcanoes that traverse west to east from Jalisco to Veracruz. Popocatepetl and Iztaccíhuatl, whose volcanic peaks reach 17,930 and 17,159 feet, respectively, are shown to the southeast of Mexico City. See also the Nabor Carrillo reservoir, or the remnant of Lake Texcoco, located to the north of Ciudad Nezahualcóyotl and Chimalhuacán.

Appendix A-4

Mexico City's Location within Mexico¹

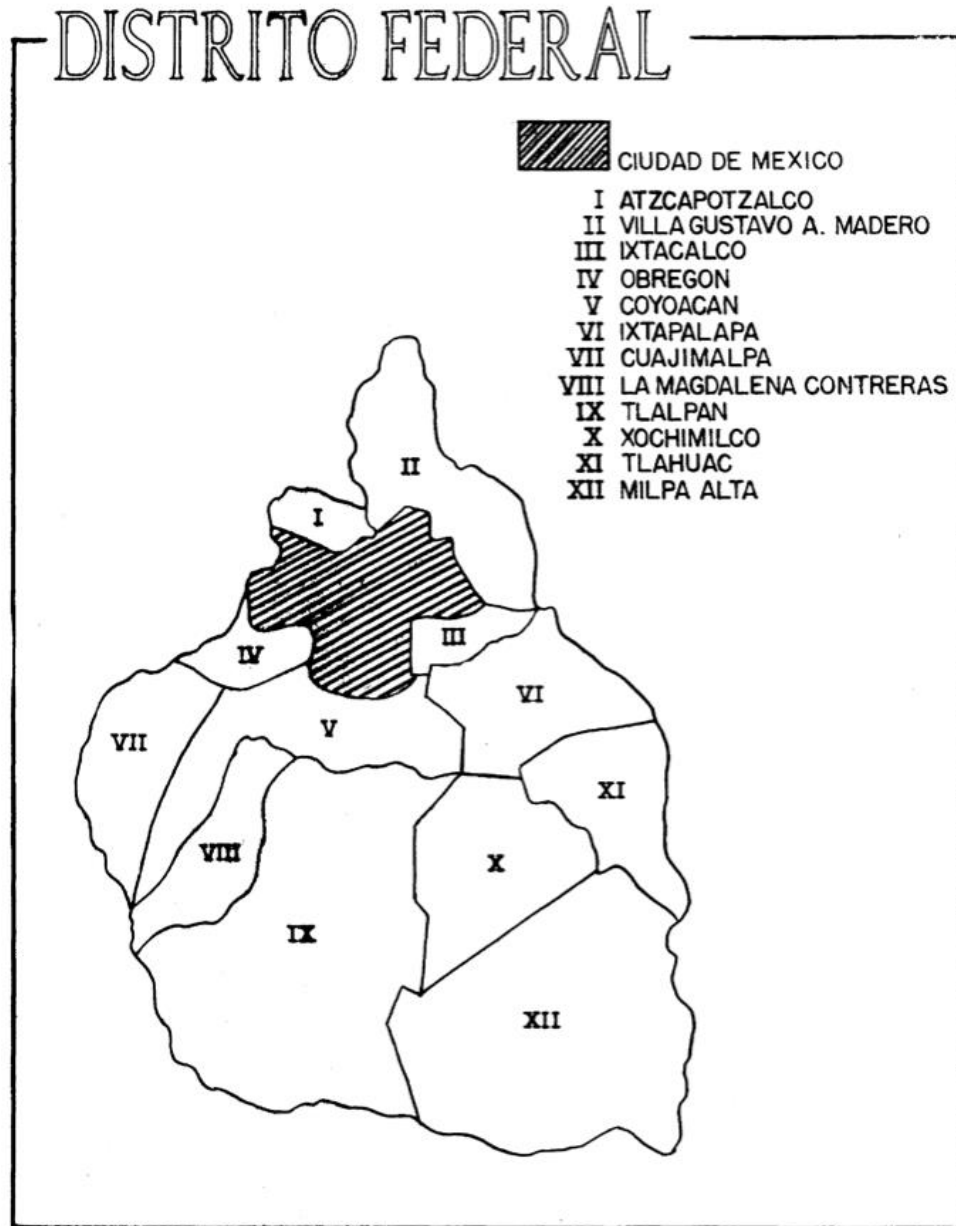


TUBS, "Mexico City in Mexico," August 4, 2011, Available from: Wikimedia Commons, accessed June 25, 2019, [https://commons.wikimedia.org/wiki/File:Mexico_\(city\)_in_Mexico_\(zoom\).svg](https://commons.wikimedia.org/wiki/File:Mexico_(city)_in_Mexico_(zoom).svg).

¹ The main map shows Mexico City's location in the country of Mexico, while the magnified portion depicts the city's location within the State of Mexico to the north.

Appendix A-5

Political and Administrative Map of the Federal District¹

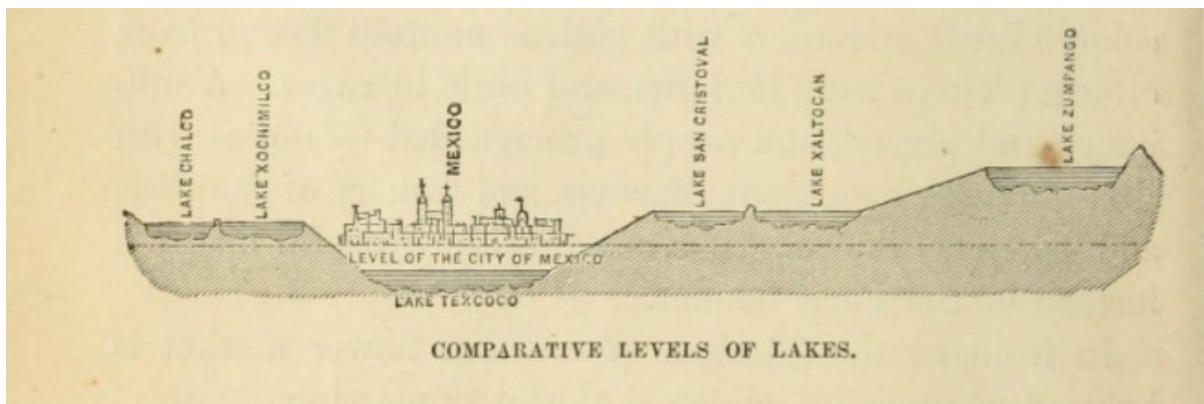
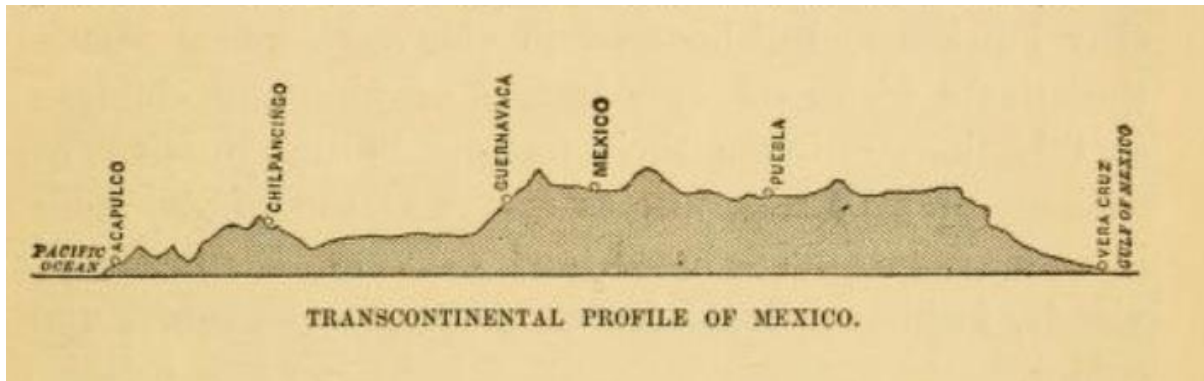


Dirección General de Estadística, *Séptimo Censo General de la Población*, 1950: Distrito Federal, 1953. Available from:
http://internet.contenidos.inegi.org.mx/contenidos/Productos/prod_serv/contenidos/espanol/bvinegi/productos/historicos/1329/702825412180/702825412180_1.pdf

¹ The four *delegaciones* (boroughs) that comprise Mexico City proper include, from west-east-south: Miguel Hidalgo, Cuauhtémoc, Venustiano Carranza, and Benito Juárez. The Historic Center of Mexico City is in the Cuauhtémoc delegation.

Appendix A-6

Elevation Profile of Mexico and Mexico City¹



Maps from William Henry Bishop, *Old Mexico and her lost provinces: A journey in Mexico, Southern California, and Arizona by way of Cuba* (New York: Harper & Brothers, 1883), 31, 46.

¹ Of the extreme variations in elevation, novelist William Henry Bishop wrote in 1881 that, "It greatly simplifies Mexico to remember that, in profile, it is a long, continuous mountain-slope, rising from the Atlantic to a central table-land, and falling, though more gradually, on the other side to the Pacific...The sharpness of contrasts in climate is scarcely to be appreciated by the hasty voyager...Mexico is extraordinarily flat, and laid out as regularly at right angles as our symmetrical towns. At the ends of all the streets the view is closed by mountains. Its flatness, together with its position in reference to the adjoining lakes, are circumstances which have occasioned great solicitude in the past..." Bishop, *Old Mexico*, 31, 46.

Appendix B

Catalogue of Nineteenth-Century Atmospheric Travel Writings and Artistic Production

Appendix B

Catalogue of Nineteenth-Century Atmospheric Travel Writings and Artistic Production¹

Name	Point of Departure ²	Role	Medium	Date of Publication	Type of Observation ³
Alexander von Humboldt	Madrid, Spain	Explorer, naturalist, active in Spanish America 1799–1804	Published manuscript	1811	Technical narrative
William Bullock	England and Jamaica	Naturalist and antiquarian, six-month visit to Mexico in 1822	Published manuscript and illustrations	1824	Visual and Descriptive narrative
Robert and John Burford	England	Father and son panorama painters, visit to Mexico in 1823	Published drawings	1826	Visual
Carl Christian Becher	Germany	Businessman, unofficial diplomatic and explorative visit, 1832–1833	Published letters	Original German version: 1834, Spanish translation: 1959	Descriptive narrative
Frances Erskine Inglis Calderón de la Barca	New York, New York, U.S.	Travel writer, husband was Spanish minister to Mexico, 1839–1842	Published private letters and travel diary	1843	Descriptive narrative
Brantz Mayer	Baltimore, Maryland, U.S.	Secretary of the U.S. legation to Mexico, 1841–1843	Published manuscript	1844	Descriptive narrative

¹ Sources are overwhelmingly male-authored, published works and appear as conversational guidebooks, diaries, popular histories, travelogues, paintings, drawings, or as more scientific and observational studies. Some authors published multiple works, but only those examined in this dissertation are included here. For a study of the early- to mid-nineteenth-century corpus of female-authored travel writing and diaries through a North Atlantic, transnational lens, see Rikki R. Bettinger, “Imperial Counterparts: North Atlantic Women’s Travels in the Caribbean and Mexico, 1800–1860,” PhD diss., (University of Houston, 2018), esp. ch. 5, which explores the themes of and interconnections between health and climate. For an exhaustive collection of traveler’s accounts, see Hira de Gortari Rabiela and Regina Hernández, *Memoria y encuentros: La Ciudad de México y el Distrito Federal, 1824–1928*, 3 vols. (México DF: Departamento del Distrito Federal, Instituto de Investigaciones Dr. José María Luis Mora, 1988).

² ‘Point of Departure’ field applies only to those who traveled to reach Mexico; locals are otherwise denoted as ‘Local to Mexico,’ although they, too, may not have been local to Mexico City.

³ As their commentaries are explored in great detail in Chapter One, narratives are categorized above according to the form through which these writers discuss Mexico City’s landscape: descriptive narrative, technical narrative, or visual. A descriptive narrative differs from a technical narrative in that it is less focused on relating a story than it is on reciting, reproducing, and showcasing technical facts and, by extension, the author’s expertise. Technical narratives were more likely, though not always, commissioned by a governing body, whether within Mexico or beyond.

Appendix B, cont.

Name	Point of Departure	Role	Medium	Date of Publication	Type of Observation
Anna Bishop	Charlestown (likely England))	English opera singer, traveled to Mexico in 1849	Published memoir	1852	Descriptive narrative
Juan Nepomuceno Almonte	Local to Mexico	Military officer, active 1822–1864	Published manuscript	1852	Technical narrative
Jesús Hermosa	Local to Mexico	Novelist, active ~1850–1880	Published manuscript	1857	Descriptive narrative
Marcos Arróniz	Local to Mexico	Poet, active early half of the 1800s	Published manuscript	1858	Descriptive narrative
Casimiro Castro	Local to Mexico	Painter, lithographer, active 1843–1877	Print/painting	1858, 1877	Visual
Ashbel K. Shepard	New York, U.S.	Author, lived in Mexico for two years, late 1850s	Published manuscript	1859	Descriptive narrative
Julio Michaud	France	Photographer, publisher, bookseller in Mexico City, 1837–1875	Published photographs	1860	Visual
James Frederick Elton	Havana, Cuba	Officer of the Royal Marines, traveled to Mexico, late 1860s	Published diary	1867	Descriptive narrative
Abel Briquet	France	Photographer, 1860s–1900	Published photographs	1860s–1880s	Visual
José María Velasco Gómez	Local to Mexico	Painter, active ~1860–1912	Painting	1875	Visual
Thomas W. Price	New York, New York, U.S.	Businessman	Published notes	1878	Descriptive narrative
Michael Wineburgh	New York, New York, U.S. and Havana, Cuba	Merchant, traveler, second half of the 1800s	Published notebook	1880	Descriptive narrative
William Henry Jackson	U.S.	Photographer, artist, active 1860s–1920s	Published photographs	1880–1885	Visual

Appendix B, cont.

Name	Point of Departure	Role	Medium	Date of Publication	Type of Observation
John James Aubertin	Europe	Traveler, scholar, and translator, visited Mexico early 1880s	Published manuscript	1882	Descriptive narrative
Howard Conkling	New York, U.S.	Businessman, traveled to Mexico in 1883	Published manuscript	1883	Descriptive narrative
William Henry Bishop	New York, New York, U.S.	Novelist, visited Mexico in 1881	Published manuscript	1883	Descriptive narrative
Frederick Albion Ober	Entered Mexico from multiple, unnamed points in the U.S.	American naturalist and writer, travels to Mexico began in 1881	Published manuscript and lectures	1884	Technical narrative
Alfred Ronald Conkling	New York, U.S.	Lawyer, visited Mexico in 1883	Published manuscript	1884	Technical narrative
José Margati	Boston, Massachusetts, U.S.	Accompanied a cohort of railroad investors on excursion via the newly completed Mexican Central Railroad, April–May, 1884	Published diary	1885	Descriptive narrative
Antonio García Cubas	Local to Mexico	Geographer, active 1857–1905	Published manuscript	1885, 1894	Technical narrative
J.H. Bates	Jersey City, New Jersey, U.S.	Visited Mexico with family, 1880s	Published notes	1887	Descriptive narrative
Francisco de Garay	Local to Mexico	Hydraulic engineer, active second half of 1800s	Published manuscript	1888	Technical narrative
Mary Elizabeth Blake (McGrath)	El Paso, Texas, U.S.	American poet	Published manuscript	1888	Descriptive narrative
Anonymous (Pseud. A. Gringo)	New York, New York, U.S.	Traveler, visited Mexico in 1883	Published manuscript	1892	Descriptive narrative

Appendix B, cont.

Name	Point of Departure	Role	Medium	Date of Publication	Type of Observation
Emil Riedel	Europe	Correspondent	Published manuscript	1892	Technical narrative
Marie Robinson Wright	U.S.	Travel writer, prepared book for Mexican government, 1895	Published manuscript	1897	Descriptive narrative
Winifred Mary, Lady Howard of Glossop (March-Phillipps-de Lisle)	London	Toured U.S., Canada, and Mexico, 1890s	Published diary	1897	Descriptive narrative
Alfred Oscar Coffin	U.S.	Professor, traveled to Mexico to learn Spanish, 1890s	Published manuscript	1898	Descriptive narrative

Appendix C

Population Statistics

Appendix C

Population Statistics

Table 1
Mexico City/Federal District Population, 1900–1990

Year	Mexico City ¹	Federal District ²
1900	344,721	541,516
1910	471,066	720,753
1921	615,367	906,063
1930	1,029,068	1,229,576
1940		1,757,530 ³
1950		3,050,442
1960		4,870,876
1970		6,874,165
1980		8,831,079
1990		8,235,744

Sources: All population statistics obtained from Dirección General de Estadística, *Censos Generales de Población* (1900–1990), available from inegi.org.mx/datos/programas/.

¹ Mexico City proper includes, from west-east-south: the delegaciones of Miguel Hidalgo, Cuauhtémoc, Venustiano Carranza, and Benito Juárez.

² As Jaime E. Rodríguez O. explains, after months of heated debate during 1823 and 1824, the Constituent Congress decided that Mexico City would serve as the independent nation's first capital instead of the proposed Querétaro. Codified in the 1824 Federal Constitution, Mexico's first constitution, the newly-formed national capital would be surrounded by a Federal District. For an explanation of this process, see Jaime E. Rodríguez O, "Hispanic Constitutions, 1812 and 1824," in *Constitutional Cultures: On the Concept and Representation of Constitutions in the Atlantic World*, ed. Silke Hensel, Ulrike Vock, Katrin Dirksen, and Hans-Ulrich Thamer (Newcastle, UK: Cambridge Scholars Printing, 2012), 92. The Federal District includes the four delegaciones of the Mexico City core and a ring of twelve others (these became *municipios*, or municipalities once the delegación unit was phased out). Clockwise, starting from the northwestern point, these are: Azcapotzalco, Gustavo A. Madero, Iztacalco, Iztapalapa, Coyoacán, Tláhuac, Xochimilco, Milpa Alta, Tlalpan, Magdalena Contreras, Álvaro Obregón, and Cuajimalpa de Morelos. The Mexico City Metropolitan Area includes the Mexico City core, the Federal District, and municipios from the State of Mexico.

³ According to Carol McMichael Reese, "By 1929...the *Ayuntamiento* (Council) of the city of Mexico was dissolved and the surrounding municipal districts were reconfigured as eleven 'delegations' under the Department of the Federal District," greatly expanding the "limits of the capital to encompass almost the entire metropolitan area." By the 1940 census, the "city of Mexico became very nearly coterminous with the Federal District," thus, for the sake of simplicity, the post-1940s population figures for Mexico City are available under the "Federal District" category. See Carol McMichael Reese, "The Urban Development of Mexico City, 1850–1930," in *Planning Latin America's Capital Cities, 1850–1950*, ed. Arturo Almandoz (London, UK: Routledge, 2002), 143–144.

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North Carolina

Duke University, David M. Rubenstein Rare Books and Manuscript Library
J. Walter Thompson Archives

Primary Sources, Private Archival Collections

Dr. Stephen Mumme Newspaper Collection
Janice Curtis Family Travel Photography Collection

Primary Sources, Digital Archives

Economic Commission for Latin America and the Caribbean, Digital Repository
Library of Congress, Digital Collections
National Archives, Digital Photography Collections
Stanford University, David Rumsey Map Center, Digital Map Collection
University of Miami, Merrick Library, Digital Collections
University of Texas at Austin, Perry-Castañeda Library Collection
University of Wisconsin, Milwaukee, American Geographical Society Library, Digital Collections

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<i>El Economista</i>	<i>The Boston Daily Globe</i>	<i>Oakland Tribune</i>
<i>El Excelsior</i>	<i>The Chicago Tribune</i>	<i>The Progress Bulletin</i>
<i>El Heraldo de México</i>	<i>The Christian Science Monitor</i>	<i>The Sacramento Bee</i>
<i>El Nacional</i>	<i>The Dallas Morning News</i>	<i>The Sun</i>
<i>El Sol de México</i>	<i>Fort Worth Star Telegram</i>	<i>Waukesha Daily Freeman</i>
<i>El Universal</i>	<i>The Hartford Courant</i>	<i>The Washington Post</i>
<i>La Jornada</i>	<i>The Los Angeles Times</i>	
<i>Novedades</i>	<i>Madera Tribune</i>	
<i>Unomásuno</i>	<i>Miami Herald</i>	

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